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DECEMBER 1979 Number 424 -- Part I

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P-A STACKS

Solar-Geophysical Data prompt reports

Data for November 1979 -- October 1979

Explanation of Data Reports Issued as Number 414 (Supplement) February 1979

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Solar - Geophysical Data

NO. 424 DECEMBER 1979

Part I (Prompt Reports)

DATA FOR
NOVEMBER 1979
OCTOBER 1979

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SOLAR-GEOPHYSICAL DATA

No. 424

Issued in two parts

Helen E. Coffey, Editor

J. Virginia Lincoln, Chief
Solar-Terrestrial Physics Division

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Notes:

"415A 52" listed under 1979 Jan means that the sunspot drawings for January 1979 were contained in *Solar-Geophysical Data* Number 415 - Part I, beginning on page 52.

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—— = no data available.
blank = data not yet received.

SGD 424 Part I (Prompt)

NOVEMBER 1979 DATA

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ALERT PERIODS

INTERNATIONAL URSIGRAM AND WORLD DAYS SERVICE

NOVEMBER 1979

PRESTO MESSAGES (THE RAPID REPORT OF MAJOR EVENTS).

05 NOVEMBER 1979 BOULDER 05/1516Z SOFLARE M2/2B S11E60 MAXIMUM 05/1155Z 46 MINUTE DURATION.
BOULDER 05/2232Z SOFLARE M4/2B S14E49 MAXIMUM 05/2149Z 22 MINUTE DURATION.
06 NOVEMBER 1979 BOULDER 06/0030Z TENFLARE 600 FLUX UNITS 05/2344Z 9 MINUTE DURATION.
BOULDER 06/0334Z TENFLARE 640 FLUX UNITS 06/0253Z 5 MINUTE DURATION.
BOULDER 06/0540Z SOFLARE X1/NO OPTICAL START 06/0502Z 23 MINUTE DURATION.
BOULDER 06/1442Z SOFLARE M2/2B N20W54 06/1416Z 14 MINUTE DURATION.
BOULDER 06/1442Z TENFLARE 320 FLUX UNITS 06/1450Z 8 MINUTE DURATION.
BOULDER 06/1512Z SOFLARE M5/SB S14E34 MAXIMUM 06/1452Z 42 MINUTE DURATION.
07 NOVEMBER 1979 BOULDER 07/1740Z SOFLARE M2/2B S13E29 07/0517Z 16 MINUTE DURATION.
08 NOVEMBER 1979 BOULDER 08/1431Z SOFLARE X1/1B S13E08 08/1112Z 15 MINUTE DURATION.
BOULDER 08/1431Z TENFLARE 500 FLUX UNITS 08/1118Z 20 MINUTE DURATION.
09 NOVEMBER 1979 BOULDER 09/0500Z SOFLARE M9/1B S13E06 09/0302Z 17 MINUTE DURATION.
10 NOVEMBER 1979 BOULDER 10/1405Z SOFLARE X1/1B S15W13 10/0644Z 15 MINUTE DURATION.
BOULDER 10/1405Z TENFLARE 1700 FLUX UNITS 10/0644Z 15 MINUTE DURATION.
12 NOVEMBER 1979 BOULDER 12/2330Z SOFLARE M3/2B N13E24 12/1941Z 39 MINUTE DURATION.
15 NOVEMBER 1979 BOULDER 15/2300Z SOFLARE M1/1B N28W34 15/2131Z 65 MINUTE DURATION.
BOULDER 15/2300Z TENFLARE 810 FLUX UNITS 15/2131Z 36 MINUTE DURATION.
16 NOVEMBER 1979 BOULDER 16/1440Z PROTON EVENT BEGAN 16/0430Z 75 PROTONS/CM2/S/SR AT GREATER THAN 10 MEV 16/1300Z ENDED 16/2225Z.
BOULDER 16/1440Z POLCAP ABSORPTION BEGAN 16/1100Z 3 DB ABSORPTION ON 30 MHZ RIOMETER.

SUMMARY OF THE GEOALERT WWA MESSAGES

Message serial number	Date of issue	Date of observation	Wolf number	10 cm solar flux	A index	Active Regions: Location Lat-Long	No. of Flares: Total	M	X	Outstanding events	Forecasts: Date	Location Lat-Long	Desc*	Alert Situations
305	01	31	252	220	003	S22W61	0	0	0		01	S22W61	Q	SOLQUIET MAGALERT MINOR 02
						N26W23	0	0	0			N26W23	Q	
						S18W66	0	0	0			S18W66	Q	
						N15W69	3	0	0			N15W69	Q	
						N18E18	2	0	0			N18E18	E	
						N14W56	0	0	0			N14W56	Q	
						S12E37	1	0	0			S12E37	Q	
						N24E28	0	0	0			N24E28	Q	
						N10E43	1	0	0			N10E43	E	
						S16E52	0	0	0			S16E52	Q	
						N24E58	1	0	0			N24E58	Q	
						N13E64	0	0	0			N13E64	Q	
						N14E31	1	0	0			N14E31	Q	
						S28E09	0	0	0			S28E09	Q	
						N13W61	0	0	0			N13W61	Q	
						N16E73	0	0	0			N16E73	Q	
306	02	01	213	214	010	S21W74	0	0	0		02	S21W74	Q	SOLQUIET MAGALERT MINOR 02/03
						N26W36	0	0	0			N26W36	Q	
						S18W78	0	0	0			S18W78	Q	
						N16W82	1	0	0			N16W82	Q	
						N18E05	1	0	0			N18E05	E	
						N12W72	1	0	0			N12W72	Q	
						S13E32	2	0	0			S13E32	Q	
						N11E31	2	0	0			N11E31	Q	
						N25E47	0	0	0			N25E47	Q	
						N15E56	2	0	0			N15E56	Q	
						S28W05	0	0	0			S28W05	Q	
						N14E17	0	0	0			N14E17	Q	
						S17W49	0	0	0			S17W49	Q	
307	03	02	209	213	012	S17W65	0	0	0		03	S17W65	Q	SOLQUIET MAGNIL
						N22W45	0	0	0			N22W45	Q	
						S29W18	1	0	0			S29W18	Q	
						N18W08	3	0	0			N18W08	E	
						N14E03	0	0	0			N14E03	Q	
						N12E17	2	0	0			N12E17	E	
						S13E19	1	0	0			S13E19	E	
						N24E34	0	0	0			N24E34	Q	
						N14E43	0	0	0			N14E43	Q	
						N17E46	0	0	0			N17E46	E	
308	04	03	169	211	008	N25W60	1	0	0		04	N25W60	Q	SOLQUIET MAGQUIET
						N18W20	10	0	0			N18W20	E	
						N13W11	0	0	0			N13W11	Q	
						N11E05	1	0	0			N11E05	E	
						S13E09	6	0	0			S13E09	E	
						N25E22	0	0	0			N25E22	Q	
						N14E26	0	0	0			N14E26	Q	
						N16E34	0	0	0			N16E34	Q	
						S13E74	0	0	0			S13E74	Q	
309	05	04	229	215	012	N24W75	0	0	0	BOULDER M1 X-RAY	05	N24W75	Q	SOLALERT 05/07 MAGQUIET
						N19W35	3	0	0	EVENT REACHED MAXI-		N19W35	E	
						S13W10	3	1	0	MUM 04/1824Z SUS-		S13W10	E	
						N12W11	1	0	0	PECTED SOURCE BE-		N12W11	Q	
						N25E08	0	0	0	HIND NE LIMB.		N25E08	Q	
						N13E11	0	0	0			N13E11	Q	
						N13W24	1	0	0			N13W24	Q	
						N16E20	0	0	0			N16E20	Q	
						S15E64	0	0	0			S15E64	Q	
						S22E27	0	0	0			S22E27	Q	
						N24E76	0	0	0			N24E76	Q	
						N18E27	4	0	0			N18E27	E	
						N17W71	1	0	0			N17W71	Q	
310	06	05	291	240	003	N18W47	4	0	0	BOULDER SOFLARE	06	N18W47	E	SOLALERT 06/XX MAGQUIET
						S14W19	1	0	0	M2/2B S11E60 MAX		S14W19	E	
						N09W21	0	0	0	05/1155Z 46 MIN		N09W21	Q	
						N24W01	0	0	0	DURATION. BOULDER		N24W01	Q	
						N13W02	0	0	0	SOFLARE M4/2B		N13W02	Q	
						N15E04	3	0	0	S14E49 MAX 05/2149Z		N15E04	Q	
						S14E48	9	5	0	22 MIN DURATION.		S14E48	A	
						S21E11	3	0	0	BOULDER TENFLARE		S21E11	Q	
						N23E63	0	0	0	600 FLUX UNITS MAX		N23E63	Q	
						N19E12	5	1	0	05/2344Z 9 MIN DURA-		N19E12	E	
						N19W82	2	0	0	TION FROM S15E43		N19W82	Q	
						S29E71	1	0	0	SYDNEY REPORTED		S29E71	Q	
						S09E64	0	0	0	1250 FLUX UNITS.		S09E64	Q	
						S15E77	1	0	0			S15E77	Q	
						S16E63	0	0	0			S16E63	Q	

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Message serial number	Date of issue	Date of observation	Wolf number	10 cm solar flux	A index	Active Regions: Location Lat-Long	No. of Flares: Total	M	X	Outstanding events	Forecasts: Date	Location Lat-Long	Desc*	Alert Situations
311	07	06	336	285	001	N20W62	2	1	0	BOULDER TENFLARE	07	N20W62	A	SOLALERT 07/XX MAGQUIET
						S12W33	0	0	0	640 FLUX UNITS		S12W33	Q	
						N09W25	0	0	0	06/0253Z 5 MIN DU-		N09W25	Q	
						N25W17	0	0	0	RATION. BOULDER		N25W17	Q	
						N14W14	0	0	0	SOFLARE X1 NO		N14W14	Q	
						S16E34	5	5	0	OPTICAL START		S16E34	A	
						S23W02	2	0	0	06/0502Z 23 MIN		S23W02	E	
						N23E50	1	0	0	DURATION. BOULDER		N23E50	E	
						N19W00	0	0	0	SOFLARE M2/2B		N19W00	E	
						S31E55	0	0	0	N20W54 06/1416Z 14		S31E55	Q	
						S12E49	0	0	0	MIN DURATION.		S12E49	Q	
						S16E69	0	0	0	BOULDER TENFLARE		S16E69	Q	
						S17E47	0	0	0	320 FLUX UNITS		S17E47	Q	
						S25E03	0	0	0	06/1450Z 8 MIN DU-		S25E03	Q	
						S22E08	0	0	0	RATION. BOULDER		S22E08	Q	
						N31E78	0	0	0	SOFLARE M5/SB		N31E78	E	
						N12W34	0	0	0	S14E34 MAX 06/1452Z		N12W34	Q	
										42 MIN DURATION.				
312	08	07	319	294	010	N19W74	1	0	0	BOULDER SOFLARE	08	N19W74	E	SOLALERT 08/XX MAGALERT 08
						S13W46	0	0	0	M2/2B S13E29		S13W46	Q	
						N26W30	0	0	0	07/0517Z 16 MIN		N26W30	Q	
						N14W28	0	0	0	DURATION.		N14W28	Q	
						S13E21	16	5	0			S13E21	A	
						S20W16	1	0	0			S20W16	E	
						N24E38	5	1	0			N24E38	E	
						N20W13	2	0	0			N20W13	E	
						S30E42	0	0	0			S30E42	Q	
						S09E35	0	0	0			S09E35	Q	
						S15E54	5	0	0			S15E54	A	
						S14E32	1	0	0			S14E32	Q	
						S21W03	1	0	0			S21W03	Q	
						N32E68	1	0	0			N32E68	A	
313	09	08	326	324	016	S12W59	0	0	0	TOKYO TENFLARE 130	09	S12W59	Q	SOLALERT 09/XX MAGALERT 09/XX
						N25W43	0	0	0	FLUX UNITS 08/0112Z		N25W43	Q	
						N13W41	0	0	0	15 MIN DURATION.		N13W41	Q	
						S13E08	8	4	1	BOULDER SOFLARE		S13E08	P	
						S21W32	2	0	0	X1/1B S13E08		S21W32	E	
						N24E25	3	0	0	08/1118Z 20 MIN DU-		N24E25	E	
						N20W25	2	0	0	RATION. BOULDER		N20W25	E	
						S30E29	0	0	0	TENFLARE 500 FLUX		S30E29	Q	
						S10E24	0	0	0	UNITS 08/1118Z 20		S10E24	Q	
						S16E41	6	2	0	MIN DURATION. TOKYO		S16E41	P	
						S23W15	0	0	0	TENFLARE 100 FLUX		S23W15	Q	
						N32E58	2	1	0	UNITS 08/0200Z 13		N32E58	A	
						N11E80	1	1	0	MIN DURATION. TOKYO		N11E80	A	
						N16E66	0	0	0	TENFLARE 300 FLUX		N16E66	Q	
						S18W39	0	0	0	UNITS 08/2330Z 7		S18W39	Q	
										MIN DURATION.				
314	10	09	363	325	017	S13W73	0	0	0	BOULDER SOFLARE	10	S13W73	Q	SOLALERT 10/XX MAGALERT 10/11
						N12W82	0	0	0	M9/1B S13E06		N12W82	Q	
						N25W56	0	0	0	09/0302Z 17 MIN DU-		N25W56	Q	
						N14W55	0	0	0	RATION. SYDNEY TEN-		N14W55	Q	
						S13W05	5	2	1	FLARE 2200 FLUX		S13W05	P	
						S22W44	1	0	0	UNITS 09/0303Z 12		S22W44	Q	
						N23E12	1	0	0	MIN DURATION STRONG		N23E12	E	
						N21W38	2	0	0	TYPE II AND IV..		N21W38	Q	
						S30E16	0	0	0			S30E16	Q	
						S11E11	0	0	0			S11E11	Q	
						S15E28	0	0	0			S15E28	A	
						S25W29	1	0	0			S25W29	Q	
						N32E43	5	2	0			N32E43	A	
						N11E63	0	0	0			N11E63	Q	
						N16E53	1	1	0			N16E53	Q	
						S17W54	3	0	0			S17W54	Q	
						N12W35	0	0	0			N12W35	Q	
315	11	10	416	383	013	S13W93	0	0	0	BOULDER SOFLARE	11	S13W93	Q	SOLALERT MAGALERT 11/12
						N25W69	0	0	0	X1/1B S15W13		N25W69	Q	
						N13W69	0	0	0	10/0644Z 15 MIN DU-		N13W69	Q	
						S14W19	8	3	1	RATION. BOULDER TEN-		S14W19	P	
						S22W58	1	0	0	FLARE 1700 FLUX		S22W58	E	
						N24W02	1	0	0	UNITS 10/0644Z 15		N24W02	Q	
						N20W51	3	0	0	MIN DURATION.		N20W51	Q	
						S30E04	0	0	0			S30E04	Q	
						S12W07	0	0	0			S12W07	Q	
						S15E15	4	0	0			S15E15	A	
						S22W41	0	0	0			S22W41	Q	
						N33E31	1	0	0			N33E31	E	
						N11E49	3	1	0			N11E49	E	
						N16E40	0	0	0			N16E40	Q	
						S18W70	3	2	0			S18W70	P	
						N26W47	0	0	0			N26W47	Q	
						S06E41	0	0	0			S06E41	Q	
						N15E64	0	0	0			N15E64	Q	
						N32E77	0	0	0			N32E77	Q	

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						Location	No. of Flares				Date	Location	Desc*	
						Lat-Long	Total	M	X			Lat-Long		
316	12	11	304	340	013	N22W82	0	0	0		12	N22W82	Q	SOLALERT 12/13 MAGALERT 12/13
						S15W33	3	0	0			S15W33	P	
						S23W73	2	0	0			S23W73	A	
						N23W13	0	0	0			N23W13	E	
						N19W63	1	0	0			N19W63	Q	
						S30W09	0	0	0			S30W09	Q	
						S16E03	11	1	0			S16E03	P	
						S24W55	2	0	0			S24W55	Q	
						N31E19	3	0	0			N31E19	A	
						N12E33	4	1	0			N12E33	A	
						N16E29	1	0	0			N16E29	Q	
						S19W84	2	0	0			S19W84	Q	
						N15E49	0	0	0			N15E49	Q	
						N33E61	0	0	0			N33E61	Q	
317	13	12	252	297	006	S14W47	2	1	0	SYDNEY TENFLARE	13	S14W47	A	SOLALERT 13/15 MAGALERT 13/14
						N23W26	0	0	0	340 FLUX UNITS		N23W26	E	
						N20W76	0	0	0	12/0128Z. TOYOKAWA		N20W76	Q	
						S30W23	0	0	0	TENFLARE 150 FLUX		S30W23	Q	
						S17W11	1	0	0	UNITS 12/0127Z.		S17W11	A	
						S23W69	0	0	0	BOULDER SOFLARE		S23W69	Q	
						N30E05	2	1	0	M3/2B N13E24		N30E05	A	
						N11E19	1	1	0	12/1941Z 39 MIN		N11E19	A	
						N15E40	0	0	0	DURATION.		N15E40	Q	
						N31E51	0	0	0			N31E51	Q	
						N37E68	0	0	0			N37E68	Q	
						N23E35	1	0	0			N23E35	Q	
318	14	13	323	273	022	N20W86	3	0	0		14	N20W86	E	SOLALERT 14/16 MAGALERT 14/XX
						S23W81	0	0	0			S23W81	Q	
						S14W59	0	0	0			S14W59	E	
						S20W55	0	0	0			S20W55	Q	
						N22W40	0	0	0			N22W40	Q	
						S29W37	0	0	0			S29W37	Q	
						S17W24	3	0	0			S17W24	A	
						N32W06	1	0	0			N32W06	A	
						N12E06	0	0	0			N12E06	E	
						S18E13	0	0	0			S18E13	Q	
						S01E13	0	0	0			S01E13	Q	
						S08E14	0	0	0			S08E14	Q	
						N14E27	1	0	0			N14E27	Q	
						N22E26	0	0	0			N22E26	Q	
						S33E33	0	0	0			S33E33	Q	
						N32E38	0	0	0			N32E38	Q	
						N38E57	0	0	0			N38E57	Q	
319	15	14	289	262	013	S14W74	0	0	0		15	S14W74	Q	SOLALERT 15/XX MAGNIL
						N22W54	0	0	0			N22W54	Q	
						S17W38	6	0	0			S17W38	E	
						N32W19	3	1	0			N32W19	E	
						N11W09	1	0	0			N11W09	Q	
						N14E13	2	0	0			N14E13	E	
						N34E32	0	0	0			N34E32	Q	
						N22E09	0	0	0			N22E09	Q	
						S18W00	2	0	0			S18W00	Q	
						S09E02	0	0	0			S09E02	Q	
						S33E19	2	0	0			S33E19	E	
						S20W71	0	0	0			S20W71	Q	
						S02W00	0	0	0			S02W00	Q	
						N03W02	0	0	0			N03W02	Q	
						N12E32	0	0	0			N12E32	Q	
320	16	15	274	245	003	N22W67	0	0	0	SYDNEY SOFLARE 2B	16	N22W67	Q	SOLALERT 16/XX MAGQUIET
						S16W52	0	0	0	N12W07 IN PROGRESS		S16W52	E	
						N32W33	3	2	0	15/2025Z 50 MIN DU-		N32W33	A	
						N10W22	1	1	0	RATION. SYDNEY TEN-		N10W22	E	
						S10W23	0	0	0	FLARE 205 FLUX		S10W23	Q	
						N14E00	0	0	0	UNITS 15/2025Z 5		N14E00	E	
						N13E10	0	0	0	MIN DURATION.		N13E10	Q	
						N38E33	0	0	0	BOULDER SOFLARE		N38E33	Q	
						S17W14	0	0	0	M1/1B N28W34		S17W14	Q	
						S08W13	0	0	0	15/2131Z 65 MIN DU-		S08W13	Q	
						S32E07	0	0	0	RATION. BOULDER		S32E07	Q	
						S02W13	0	0	0	TENFLARE 810 FLUX		S02W13	Q	
						N11E16	0	0	0	UNITS 15/2131Z 36		N11E16	Q	
						N10W33	0	0	0	MIN DURATION.		N10W33	Q	
						S06W27	0	0	0			S06W27	Q	
						N24E68	0	0	0			N24E58	Q	

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321	17	16	263	235	010	N22W79	0	0	0	BOULDER PROTON	17	N22W79	Q	SOLALERT 17/XX MAGQUIET
						S16W65	3	0	0	EVENT BEGAN		S16W65	E	
						N32W45	0	0	0	16/0430Z 75		N32W45	A	
						N11W31	0	0	0	PROTONS/CM^2 S SR		N11W31	A	
						N14W13	0	0	0	AT GREATER THAN 10		N14W13	E	
						N31W02	3	0	0	MEV 16/1300Z ENDED		N31W02	E	
						N37E20	0	0	0	16/2225Z. BOULDER		N37E20	O	
						N20W20	0	0	0	POLCAP ABSORPTION		N20W20	O	
						S16W28	0	0	0	BEGAN 16/1100Z 3		S16W28	Q	
						S32W07	0	0	0	DB ABSORPTION ON		S32W07	A	
						S02W28	0	0	0	30 MHZ RIOMETER.		S02W28	Q	
						N11E02	0	0	0			N11E02	O	
						N25E56	1	0	0			N25E56	O	
						N35W31	0	0	0			N35W31	Q	
						N32E05	0	0	0			N32E05	E	
						S19E77	1	0	0			S19E77	E	
322	18	17	278	237	006	S17W88	0	0	0		18	S17W88	A	SOLALERT 18/XX MAGQUIET
						N32W55	2	1	0			N32W55	A	
						N12W45	2	0	0			N12W45	E	
						N14W30	0	0	0			N14W30	E	
						N30W16	1	0	0			N30W16	E	
						N38E05	0	0	0			N38E05	Q	
						S15W44	0	0	0			S15W44	Q	
						S32W19	2	1	0			S32W19	A	
						S01W41	1	0	0			S01W41	O	
						N12W12	0	0	0			N12W12	Q	
						S06W53	4	0	0			S06W53	A	
						N24E45	3	0	0			N24E45	Q	
						N35W45	0	0	0			N35W45	Q	
						N32W07	0	0	0			N32W07	E	
						S20E66	0	0	0			S20E66	E	
						N22W41	0	0	0			N22W41	Q	
						N23W32	0	0	0			N23W32	Q	
323	19	18	223	237	006	N32W69	0	0	0		19	N32W69	A	SOLALERT 19/20 MAGQUIET
						N11W58	1	0	0			N11W58	E	
						N14W43	0	0	0			N14W43	Q	
						N29W30	0	0	0			N29W30	Q	
						S17W60	1	0	0			S17W60	Q	
						S33W31	2	0	0			S33W31	A	
						S01W57	1	0	0			S01W57	E	
						N11W25	0	0	0			N11W25	Q	
						S07W66	2	1	0			S07W66	A	
						N24E31	1	0	0			N24E31	E	
						N31W20	1	0	0			N31W20	Q	
						S20E53	0	0	0			S20E53	Q	
324	20	19	234	220	006	N33W85	1	0	0		20	N33W85	Q	SOLNIL MAGQUIET
						N12W72	2	0	0			N12W72	E	
						N14W56	0	0	0			N14W56	O	
						N31W42	0	0	0			N31W42	Q	
						S16W74	0	0	0			S16W74	Q	
						S32W45	1	0	0			S32W45	A	
						S01W70	0	0	0			S01W70	Q	
						N12W38	0	0	0			N12W38	Q	
						S06W80	0	0	0			S06W80	E	
						N24W18	0	0	0			N24W18	Q	
						N31W33	1	0	0			N31W33	E	
						S19E39	0	0	0			S19E39	Q	
						S15E70	0	0	0			S15E70	O	
						S24E45	0	0	0			S24E45	Q	
325	21	20	190	211	009	N12W85	0	0	0		21	N12W85	Q	SOLQUIET MAGQUIET
						N14W69	0	0	0			N14W69	O	
						N30W56	1	0	0			N30W56	Q	
						S16W87	0	0	0			S16W87	Q	
						S33W58	4	0	0			S33W58	E	
						S01W83	0	0	0			S01W83	Q	
						S06W93	0	0	0			S06W93	O	
						N24E05	0	0	0			N24E05	Q	
						N31W45	0	0	0			N31W45	Q	
						S19E26	0	0	0			S19E26	Q	
						S14E57	0	0	0			S14E57	Q	
						S25E34	0	0	0			S25E34	Q	
						N25E30	0	0	0			N25E30	O	
326	22	21	147	195	005	N13W82	1	0	0		22	N13W82	Q	SOLQUIET MAGQUIET
						N29W70	0	0	0			N29W70	Q	
						S33W69	1	0	0			S33W69	E	
						N24W08	0	0	0			N24W08	O	
						N31W58	2	0	0			N31W58	O	
						S18E12	2	0	0			S18E12	O	
						S14E43	0	0	0			S14E43	Q	
						S24E21	1	0	0			S24E21	Q	
						N25E15	0	0	0			N25E15	Q	
						N11E46	0	0	0			N11E46	O	
						(SPOTLESS AREA AT S18E08 HAD ONE SUBFLARE)								

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327	23	22	142	187	003	N30W82	0	0	0		23	N30W82	Q	SOLQUIET MAGQUIET
						S34W74	2	0	0			S34W74	E	
						N13W73	4	0	0			N13W73	Q	
						N30W70	4	0	0			N30W70	Q	
						N24W20	0	0	0			N24W20	E	
						S19W03	4	0	0			S19W03	Q	
						S25E10	0	0	0			S25E10	DA	
						S15E25	0	0	0			S15E25	D	
						N17E27	0	0	0			N17E27	D	
328	24	23	150	188	003	N24W33	0	0	0		24	N24W33	E	SOLQUIET MAGQUIET
						N34W29	1	0	0			N34W29	Q	
						S17W17	1	0	0			S17W17	Q	
						S14E13	0	0	0			S14E13	D	
						S24W01	3	0	0			S24W01	DA	
						N18E13	0	0	0			N18E13	Q	
						N21E73	0	0	0			N21E73	Q	
						N14W32	1	0	0			N14W32	E	
						S13E22	0	0	0			S13E22	Q	
329	25	24	159	184	020	N25W48	0	0	0		25	N25W48	Q	SOLQUIET MAGQUIET
						S17W30	1	0	0			S17W30	Q	
						S15W01	0	0	0			S15W01	Q	
						S25W16	0	0	0			S25W16	E	
						N17W00	1	0	0			N17W00	Q	
						N20E57	0	0	0			N20E57	Q	
						N14W47	0	0	0			N14W47	Q	
						S14E10	0	0	0			S14E10	D	
						N11E42	2	0	0			N11E42	E	
330	26	25	157	174	009	N24W61	0	0	0		26	N24W61	Q	SOLQUIET MAGQUIET
						S18W43	1	0	0			S18W43	D	
						S15W15	0	0	0			S15W15	D	
						S24W28	3	0	0			S24W28	E	
						N18W14	0	0	0			N18W14	Q	
						N21E44	0	0	0			N21E44	Q	
						N14W60	1	0	0			N14W60	E	
						N11E26	1	0	0			N11E26	Q	
						S11E70	0	0	0			S11E70	D	
						N22E05	1	0	0			N22E05	Q	
331	27	26	184	166	003	N23W73	0	0	0		27	N23W73	Q	SOLQUIET MAGQUIET
						S17W59	2	0	0			S17W59	Q	
						S15W27	1	0	0			S15W27	Q	
						S26W42	1	0	0			S26W42	E	
						N17W28	0	0	0			N17W28	Q	
						N19E30	0	0	0			N19E30	Q	
						N13W75	0	0	0			N13W75	Q	
						S12E57	0	0	0			S12E57	Q	
						N21E03	0	0	0			N21E03	Q	
						S17E74	0	0	0			S17E74	Q	
						S20W36	0	0	0			S20W36	Q	
						N11E42	0	0	0			N11E42	Q	
332	28	27	149	160	006	N23W73	0	0	0		28	N23W73	Q	SOLQUIET MAGQUIET
						S17W59	0	0	0			S17W59	Q	
						S15W27	0	0	0			S15W27	Q	
						S26W42	1	0	0			S26W42	E	
						N17W28	0	0	0			N17W28	Q	
						N19E30	0	0	0			N19E30	Q	
						N13W75	0	0	0			N13W75	Q	
						S12E57	0	0	0			S12E57	Q	
						N21E03	0	0	0			N21E03	Q	
						S17E74	0	0	0			S17E74	Q	
						S20W36	0	0	0			S20W36	Q	
333	29	28	157	154	005	S17W87	0	0	0		29	S17W87	Q	SOLQUIET MAGALERT MINOR 30
						S16W54	2	0	0			S16W54	E	
						S26W72	1	0	0			S26W72	Q	
						N16W55	0	0	0			N16W55	Q	
						N20E04	0	0	0			N20E04	D	
						S12E30	0	0	0			S12E30	Q	
						N24W21	0	0	0			N24W21	Q	
						S16E46	0	0	0			S16E46	Q	
						S20W60	0	0	0			S20W60	Q	
						N12E14	0	0	0			N12E14	Q	
						S14W43	0	0	0			S14W43	Q	
						S21E64	0	0	0			S21E64	E	
						N25E60	0	0	0			N25E60	Q	
334	30	29	104	158	007	S15W68	4	0	0		30	S15W68	E	SOLQUIET MAGNIL
						N17W70	0	0	0			N17W70	Q	
						N20W11	0	0	0			N20W11	Q	
						S12E17	0	0	0			S12E17	Q	
						S16E33	1	0	0			S16E33	Q	
						S21E49	1	0	0			S21E49	E	
						N10E21	0	0	0			N10E21	Q	
						S26E70	0	0	0			S26E70	Q	

ALERT PERIODS

INTERNATIONAL URSIGRAM AND WORLD DAYS SERVICE

NOVEMBER 1979

SUMMARY OF THE GEOALERT WWA MESSAGES

Message serial number	Date of issue	Date of observation	Wolf number	10 cm solar flux	A index	Active Regions				Outstanding events	Forecasts			Alert Situations
						Location Lat-Long	No. of Flares Total	M	X		Date	Location Lat-Long	Desc*	
335	01	30	159	157	015	S17W82	0	0	0	BOULDER MAGSTORM	01	S17W82	Q	SOLQUIET MAGQUIET
						N17W84	0	0	0	BEGAN 30/0739Z		N17W84	Q	
						N21W21	0	0	0	UNSETTLED TO		N21W21	Q	
						S12E04	0	0	0	30/1600Z.		S12E04	Q	
						S16E20	1	0	0			S16E20	Q	
						N12W10	0	0	0			N12W10	Q	
						S20E35	1	0	0			S20E35	E	
						N11E06	0	0	0			N11E06	Q	
						S25E55	0	0	0			S25E55	Q	
						S10W25	0	0	0			S10W25	Q	
						N19E56	1	0	0			N19E56	Q	
						S15E70	2	0	0			S15E70	E	
						N27E19	0	0	0			N27E19	Q	

* Q=Quiet E=Eruptive A=Active P=Proton C=Caution D=Doubtful O.G.=Other Groups MF=Major Flare

RELATIVE SUNSPOT NUMBERS

ZURICH, R_z

1978 FINAL 1979 PROVISIONAL

DAY	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV
1	110	158	116	116	131	108	121	158	115	165	213	224
2	110	150	127	138	134	106	152	168	96	141	187	157
3	117	191	148	141	135	103	161	205	121	148	167	155
4	115	157	123	142	138	112	178	219	110	157	156	172
5	104	146	134	135	109	113	207	232	93	139	168	166
6	122	173	146	144	91	122	226	249	104	139	168	210
7	138	163	144	146	77	148	222	223	110	170	179	254
8	148	172	142	143	69	165	228	219	132	192	190	280
9	152	165	139	146	61	162	231	191	115	190	210	279
10	144	163	137	140	87	145	205	163	92	177	178	302
11	178	157	137	156	109	148	186	155	84	167	183	295
12	188	159	138	170	107	158	199	145	87	156	189	248
13	165	159	152	169	113	163	172	142	91	175	211	183
14	150	162	163	159	116	203	149	127	119	186	213	218
15	140	178	161	155	117	207	127	121	135	177	198	186
16	143	164	159	130	119	187	103	114	122	170	185	166
17	146	164	160	142	107	184	122	109	138	155	221	253
18	132	146	162	142	98	148	126	109	157	177	224	172
19	95	138	166	138	79	189	118	135	176	195	221	174
20	84	177	169	120	68	107	111	158	187	191	219	153
21	68	181	171	134	68	114	124	151	218	184	215	131
22	63	178	155	148	79	121	108	152	216	178	198	123
23	59	188	127	139	79	117	96	154	206	219	186	142
24	65	209	99	118	80	119	98	143	203	236	161	162
25	81	209	88	114	85	124	120	144	201	252	153	155
26	93	173	108	114	118	123	132	142	182	261	145	141
27	110	162	97	117	125	118	112	146	189	256	143	115
28	122	157	95	114	132	110	128	132	174	239	142	119
29	135	153		110	132	113	124	148	150	235	191	98
30	159	149		127	120	96	154	150	158	233	197	116
31	177	138		147		128		144	168		223	
MEAN	122.7	165.8	138.8	137.0	102.8	134.6	158.5	159.6	143.5	188.7	188.2	185.8

1978 yearly mean = 92.5

DAILY SOLAR FLUX AT 2800 MHz
OTTAWA ARO

FLUX ADJUSTED TO 1 A.U., S_a

1978 1979

DAY	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV
1	166.6	194.1*	185.8	168.5	202.6*	188.4	189.5	186.3	149.1	175.8	212.8	211.6
2	167.6	200.1	185.6	170.7	203.4	179.2	206.8*	200.9*	143.9*	180.1	211.5	209.5
3	164.2	203.5*	187.4*	173.3	194.2	164.3	216.1*	213.4	145.1	180.8	204.7	207.5
4	165.3	192.7*	187.7	181.4	183.5	176.8	228.8*	216.1	141.7	175.3*	197.7*	214.2
5	169.5	194.9	197.4	180.1*	179.3	169.6	230.2	204.5	141.6	177.1	192.8*	235.5
6	164.5	198.9	206.5	182.4	176.3	171.1*	238.1	211.3	149.5	180.4*	195.5	273.2*
7	178.5*	186.2	203.4	183.1*	166.7	178.8	238.1	207.2	151.1	186.3	197.8	286.9*
8	189.9	200.1	207.2*	178.9	169.8*	182.4*	242.7	206.7	152.7	183.6	200.3	310.1
9	189.6	192.6	198.7	181.4	169.6	181.3	247.4*	197.9*	157.3	187.4	209.5	314.4*
10	204.7	186.2	198.4*	180.6	173.8	174.7	239.9	185.9	152.1*	184.6	208.7	367.8*
11	218.5	179.5	202.2*	181.7*	170.8*	178.6	229.6	178.6	154.4	181.5*	211.8	325.7*
12	217.3	174.5	195.4	188.7	174.5	184.2	208.3	178.1	144.8	181.7	216.4	294.4
13	218.6*	193.9	195.4	186.3	175.8	186.6	193.7	161.4	155.8	186.1	239.1	272.7
14	197.8	208.8*	204.2*	189.4	178.9	182.8	185.7	154.7*	158.2*	192.6*	236.4	256.4
15	192.7	192.1*	205.8*	181.3	168.1	181.9	176.8	151.1	167.6	193.8	230.7	239.7*
16	188.5	189.9*	209.2	183.5*	171.7	176.4	167.5	143.6	164.8	196.3*	232.3	230.6
17	177.7	175.7	213.1	177.7	168.8	187.7	158.1	142.7	165.8	202.7*	226.8	231.8
18	161.5	177.6	237.7	188.6*	158.7	171.3*	152.6	141.2	188.8	215.7	236.8	231.9
19	152.9	187.8	237.8	177.6	159.4	161.5	146.2	143.6	186.4	218.1*	237.3*	214.8
20	138.1	197.2	238.1*	184.1	156.1	155.6	151.5	146.6	204.2*	213.9*	236.7*	205.9
21	132.1*	218.3	225.1	182.2	161.5	155.7	148.9	143.7*	207.6*	218.4	230.1	189.8
22	132.7	226.9	223.3	181.1	159.7*	156.5*	141.1	155.7	223.2	216.5	221.9	182.5
23	133.4	225.1	196.8	188.5	162.3	156.8	139.0	163.1*	218.6	224.2*	214.9*	183.2
24	135.2*	208.5	182.8	188.3	161.9	159.2*	141.2	168.6	225.2	230.7	225.6*	175.2*
25	138.8	206.1	167.5	188.2	172.5	153.3*	147.8	164.5	229.3*	235.5	215.2	165.8*
26	144.2	192.9	166.8	188.2	182.8	149.1	153.7	165.6	223.3	229.9*	202.9	161.6
27	148.7*	205.4	162.7	187.9	195.1*	149.4	158.5	159.1*	212.8	228.7*	211.2	155.7
28	164.1	209.6	163.6	188.6	192.1*	149.2	159.1	158.1	214.2	233.8	210.8	150.1
29	166.2	209.3		191.4	185.7	158.2	166.9	156.7	197.6	225.8	214.8	154.8
30	181.7	194.1*		186.6	185.2*	158.4	176.7*	160.3	187.8	231.9	213.7*	152.2
31	195.1	193.7		201.4*		174.9		152.4	179.9		214.9*	
MEAN	170.8	196.5	199.1	184.8	175.8	168.9	186.8	171.4	177.8	202.3	216.4	226.8

* adjusted for burst
A = interpolated data point

DAILY SOLAR INDICES

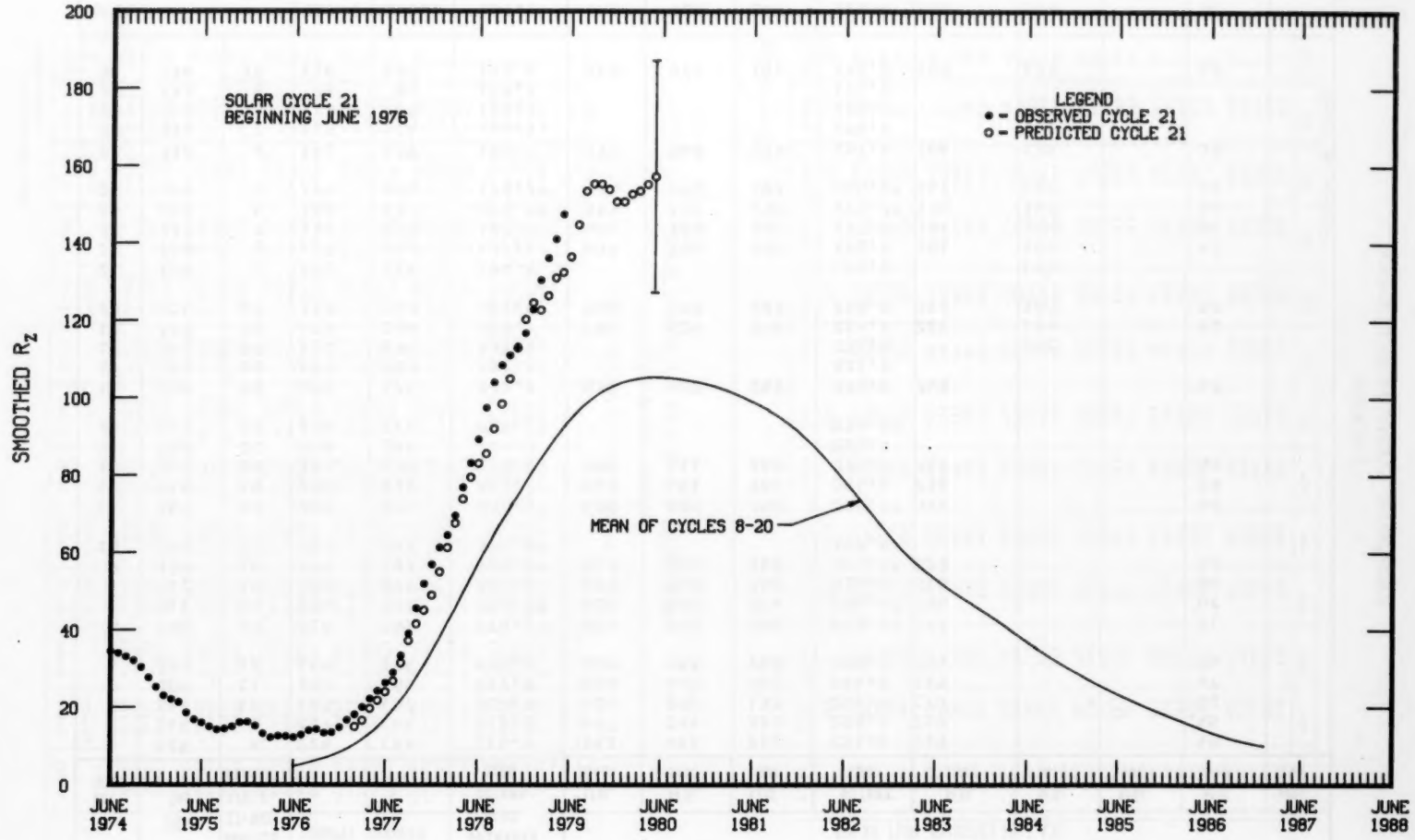
NOVEMBER 1979

NOV 1979	YEAR DAY	BARTELS 27-DAY CYCLE NUMBER	SUNSPOT NUMBERS		OBSERVED FLUX	SOLAR FLUX ADJUSTED TO 1 A.U.								
			R_Z	$R_{A'}$	OTTAWA 2800	AFGL 15400	AFGL 8800	AFGL 4995	OTTAWA 2800	AFGL 2695	AFGL 1415	AFGL 606	AFGL 410	AFGL 245
1	305	8	224	188	214.8	583	430	219	211.6	215			49	
2	306	9	157	164	212.9	577	394	221	209.5	215			45	
3	307	10	155	157	210.9	425	290	193	207.5	177			50	
4	308	11	172	165	217.9	606	415	222	214.2	215			47	
5	309	12	166	194	239.6	618	458	260	235.5	254			54	
6	310	13	210	241	278.2*	634	513	298	273.2*	277			71	
7	311	14	254	259	292.2*	632	509	324	286.9*	295			62	
8	312	15	280	275	316.1	629	540	342	310.1	316			66	
9	313	16	279	293	320.5*	619	520	345	314.4*	329			62	
10	314	17	302	292	374.5*				367.0*					
11	315	18	295	254	332.3*	620	535	352	325.7*	340			66	
12	316	19	248	210	300.7	568	451	301	294.4	290			76	
13	317	20	183	195	278.5	551	411	269	272.7	255			49	
14	318	21	218	206	261.9				256.4					
15	319	22	186	177	245.1*				239.7*					
16	320	23	166	175	235.8	600	432	240	230.6	240			47	
17	321	24	253	209	237.3				231.8					
18	322	25	172	194	237.4				231.9		172			
19	323	26	174	168	220.1	586	426	235	214.8	225	164		43	
20	324	27	153	143	211.0	536	392	220	205.9	210	163		53	
21	325	1	131	114	194.5				189.8		146			
22	326	2	123	121	187.2	537	395	197	182.5	191	159		45	
23	327	3	142	129	187.9	552	389	201	183.2	184	144		45	
24	328	4	162	137	179.9*	555	372	198	175.2*	178	143		44	
25	329	5	155	124	170.2*	534	356	198	165.8*	167	137		40	
26	330	6	141	135	165.9	519	349	175	161.6	164	126		39	
27	331	7	115	114	160.0				155.7					
28	332	8	119	78	154.3				150.1					
29	333	9	98	80	158.3				154.0					
30	334	10	116	105	156.6	549	371	181	152.2	159	123		40	
MEAN			185.0	176.5	231.7	573	426	247	226.8	233	148		52	

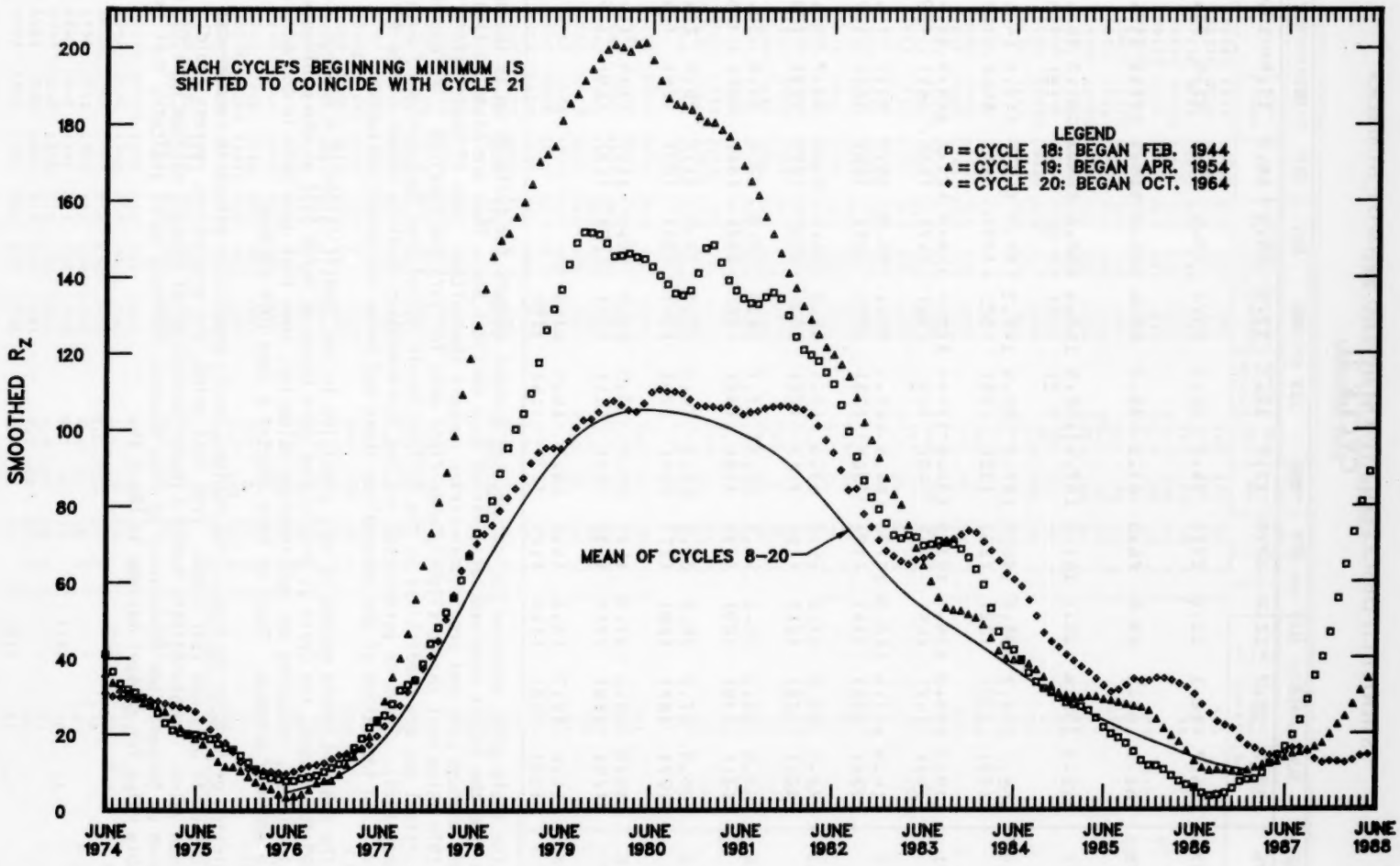
* Adjusted for burst.

Note: Data gaps in AFGL Sagamore Hill data are due to equipment problems.

OBSERVED AND PREDICTED SMOOTHED SUNSPOT NUMBERS



SUPERPOSITION OF CYCLES 18, 19, AND 20



SMOOTHED OBSERVED AND PREDICTED SUNSPOT NUMBERS
CYCLE 21

MONTH	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1976	15.2	13.2	12.2	12.6	12.5	12.2	12.9	14.0	14.3	13.4	13.5	14.8
1977	16.7	18.1	20.0	22.2	24.2	26.3	29.0	33.4	39.1	45.6	51.9	56.9
1978	61.3	64.5	69.6	76.9	83.2	89.3	97.4	104.0	108.4	111.0	113.3	116.7
1979	122.8	130.4	136.1	141.0	147.4	152.5	157.4	160.8	163.1	164.3	164.8*	164.1
						(2)	(5)	(6)	(8)	(10)	(14)	(17)
1980	162.2	160.2	158.8	158.3	157.2	153.4	149.2	145.7	143.5	142.4	140.9	139.6
	(20)	(22)	(22)	(26)	(30)	(33)	(37)	(39)	(40)	(41)	(43)	(46)
1981	139.7	139.3	136.7	133.5	130.6	127.7	126.5	126.4	125.8	124.4	121.8	118.4
	(48)	(47)	(45)	(44)	(45)	(45)	(44)	(42)	(41)	(41)	(39)	(38)
1982	114.9	111.4	108.9	107.0	104.6	102.1	98.1	92.9	88.2	83.2	79.6	76.0
	(36)	(35)	(34)	(32)	(30)	(28)	(27)	(25)	(24)	(21)	(20)	(20)
1983	72.0	69.0	67.1	65.2	63.0	60.4	58.3	56.5	54.8	53.7	52.8	51.8
	(20)	(20)	(21)	(21)	(21)	(22)	(23)	(25)	(27)	(29)	(30)	(30)
1984	50.5	48.3	45.0	41.3	38.7	37.7	36.8	35.2	33.6	32.2	30.8	29.1
	(31)	(30)	(29)	(29)	(30)	(32)	(32)	(32)	(31)	(29)	(28)	(28)
1985	27.9	27.2	26.5	26.0	25.3	24.2	23.3	22.4	21.7	20.9	20.0	19.4
	(27)	(27)	(26)	(27)	(26)	(25)	(24)	(23)	(23)	(24)	(24)	(24)
1986	18.9	18.1	17.2	16.2	14.8	13.5	12.5	12.0	11.7	11.4	11.2	11.3
	(25)	(25)	(24)	(23)	(22)	(21)	(20)	(19)	(18)	(16)	(15)	(14)
1987	11.6	12.2	13.1	14.1	15.3	16.4	17.6					
	(12)	(12)	(12)	(12)	(13)	(14)	(15)					

The table gives observed Zürich smoothed sunspot numbers for Cycle 21 up to the one calculated from the latest observed data, marked by a vertical bar. They are based on final Zürich numbers through 1978 and provisional Zürich numbers thereafter. Some of these data after the June 1976 value will change slightly when final data for 1979 are received. The numbers after the vertical bar are predictions by the McNish-Lincoln method (see *Explanation of Data Reports*, February 1978). Shown in parentheses are the corresponding absolute values of the 90% confidence interval, an indication of the uncertainty above and below the predicted number.

The McNish-Lincoln method is very sensitive to the identification of a minimum epoch. In SGD 390-401 issues, the Cycle 21 predictions were based on March 1976 as the minimum epoch. Latest studies, including one published by Waldmeier, show that June 1976 is the more appropriate epoch of minimum. Thus, we have adopted a June 1976 mimimum.

*Prediction of Sunspot Maximum -- The McNish-Lincoln prediction method is recommended for predictions up to only one year ahead. From that point, the predictions regress rapidly towards the mean value. Combining this McNish-Lincoln prediction of sunspot maximum with the Ohl method (as done by Sargent, see *Explanation of Data Reports*, February 1979) indicates that the most probable value for sunspot maximum is 164 ± 19.

Hα SOLAR FLARES

NOVEMBER 1979

OBSERVATORY	OBSERVED UT				LOCATION				CMP. DAY	DURATION — MIN.	IMPORTANCE	OBS.		MEASUREMENTS			REMARKS
	DAY	START	MAX. PHASE	END	APPROX. LAT.	APPROX. MER. DIST.	CENTRAL DISTANCE	MCMATH PLAGE REGION				COND.	TYPE	TIME — UT	MEAS. AREA Mill. of Disk	CORR. AREA Sq. Deg.	
MANI	01	0038E	0039	0055D	N10	E46	.754		4.5	17D	SN	3	C		120		
MANI	01	0038E	0039	0055D	S15	E46	.716		4.5	17D	SN	3	C		120		
MANI	01	0719E	0720	0725D	S10	E35	.569		3.9	6D	SN	3	V		15	.2	
ATHN	01	0812E	0813U	0842D	N16	W75	.977		23.7	30D	SB	3	C		0		DE
MANI	01	0812E	0813	0830D	N16	W75	.977		23.7	18D	SN	2	V		80	1.9	F
ATHN	01	0852E	0853U	0900D	S11	E33	.541		3.8	8D	SB	3	C		22		DE
ATHN	01	1005E	1007U	1008D	N16	E80	.991		7.4	3D	1B	3	C		159		Y
RAMY	01	1653	1654	1657D	N12	W62	.903		25.1	4D	SB	3	C		19		
HOLL	01	1654E	1655U	1706	N14	W65	.926		24.8	12D	SN	3	C		40		
RAMY	01	1755	1802	1805	N18	E64	.927		6.5	10	SF	3	C		19		
RAMY	01	1848	1848	1906	N12	E35	.640		4.4	18	SF	3	C		19		F
RAMY	01	1928	1928U	1953D	N19	E 7	.456		2.3	25D	SN	3	C		37		F
BIGB	01	2156	2159	2204	N09	W78	.983		24.1	8	SN		C	2159	50		G
RAMY	02	1254	1255	1300	S29	W 6	.383		2.1	6	SF	3	C		43		
RAMY	02	1639	1642	1709	S14	E20	.355		4.2	30	SN	3	C		121		F
RAMY	02	1655	1655	1700	N12	E22	.487		4.4	5	SN	3	C		23		
BIGB	02	1757	1759U	1806D	S14	E19	.340		4.2	9D	SF	1			50	.5	
BIGB	02	1802	1804	1805	N18	W09	.450		2.1	3	SF	1			25	.3	
BIGB	02	1812	1815	1828	S19	W85	.992		24.4	16	SF	1					
RAMY	02	1814	1816	1823	S22	W85	.992		24.4	9	SF	3	C		0		
BIGB	02	1823	1830	1852D	N07	E25	.480		4.6	29D	SF	1			37	.5	
HOLL	02	1825	1857	1924	N12	E24	.510		4.6	59	SF	2	C		87		F
RAMY	02	1829	1832	1843	N12	E21	.475		4.3	14	SF	3	C		32		F
BIGB	02	1855	1857	1901	N11	E16	.410		4.0	6	SN	1			50	.5	
BIGB	02	1906	1907	1910	N17	W11	.447		2.0	4	SF	1			25	.3	
BIGB	02	1934	1935	1941	N17	W11	.447		2.0	7	SF	1			25	.3	
BIGB	02	2114	2116	2201	N20	W02	.459		2.7	47	SN	1			25	.3	
BIGB	02	2126	2339	2353	N20	E01	.458		3.0	147	SN	1			50	.5	K
BIGB	02	2126	2128	2353	N20	E01	.458		3.0	147	SN	1			50	.5	K
BIGB	02	2129	2133	2258	N19	W01	.442		2.8	89	SN	1			30	.3	
BIGB	02	2134	2141U	2203D	N19	W11	.475		2.1	29D	SF	1			12	.1	
BIGB	02	2144	2145	2146	N17	W12	.454		2.0	2	SF	1			16	.2	
PALE	03	0016	0021	0028	N19	W 5	.449		2.6	12	SF	3	C		31		F
WEND	03	1439	1443	1447	S14	E17	.309		4.9	8	SN		V	1443	120	1.3	
RAMY	03	1442	1444	1452	S12	E21	.362		5.2	10	SB	3	C		118		FDE
HOLL	03	1443	1443	1458	S13	E22	.381		5.3	15	SB	3	C		58		F
RAMY	03	1513	1513	1548	N16	W51	.825		27.8	35	SN	3	C		34		F
HOLL	03	1517	1523	1537	N15	W50	.812		27.9	20	1N	3	C		237		F
HOLL	03	1517	1520	1553	S17	E 7	.206		4.2	36	1N	3	C		225		F
HOLL	03	1517	1519	1537	N16	W49	.807		28.0	20	SF	3	C		57		F
HOLL	03	1622	1625	1630	S15	E 7	.180		4.2	8	SF	3	C		38		
HOLL	03	1647	1647	1652	N18	W13	.474		2.7	5	SF	3	C		21		
RAMY	03	1656	1701	1733	N14	W16	.447		2.5	37	SN	3	C		69		
HOLL	03	1659	1701	1734	N13	W18	.454		2.4	35	SN	3	C		44		F H
PALE	03	1721E	1738	1756	N18	W12	.468		2.8	35D	SF	2	C		35		F
HOLL	03	1737	1820	1838	N17	W13	.461		2.8	61	SB	3	C		60		F
RAMY	03	1737	1811	1830	N18	W14	.481		2.7	53	SN	3	C		83		F U
RAMY	03	1754	1803	1837	S15	E 6	.169		4.2	43	1B	3	C		271		F
HOLL	03	1757	1804	1838	S17	E 7	.206		4.3	41	1B	3	C		288		F
PALE	03	1805E	1807U	1823	S15	E 5	.160		4.1	18D	SN	2	C		124		U F
HOLL	03	1948	1954	2018	N18	W15	.489		2.7	30	SN	3	C		100		F
PALE	03	1951	1952	2007	N18	W13	.474		2.9	16	SF	2	C		30		H F
HOLL	03	2117	2117	2126	S16	E 5	.174		4.3	9	SF	3	C		25		
HOLL	03	2152	2214	2216D	N17	W16	.484		2.7	24D	SB	3	C		140		F
HOLL	03	2152	2214	2242	N17	W16	.484		2.7	50	SB	3	C		140		F
PALE	03	2204	2206	2206	N18	W20	.531		2.4	2	SF	2	C		54		FDE
MANI	03	2215E	2215U	2227D	N18	W17	.505		2.7	12D	SN	3	C		100		F
HOLL	03	2344	2346	2348D	N13	E 4	.352		4.3	4D	SN	2	C		30		
BIGB	04	2048	2052	2121	N23	E75	.982		10.5	33	SN		C	2052	40		
BIGB	04	2349	2351	0007	S15	W12	.243		4.1	18	SN		C	2351	130	1.4	
MANI	05	0212E	0212U	0231	N18	E28	.608		7.2	19D	SN	2	V		120	1.4	F
HOLL	05	1541	1542	1556	S15	W54	.803		1.6	15	SF		C	1542	60	1.1	F H
BIGB	05	1700E	1741	1753	S14	E52	.782		9.6	53D	1B	2	C		188		
PALE	05	1736	1741	1750	S16	E49	.751		9.4	14	1N	3	C		117		F H
BIGB	05	1740	1742	1752	S13	E48	.738		9.3	12	SN		C	1742	40	.6	
HOLL	05	1758	1842	1856	S15	E56	.823		9.9	58	SB	2	C		63		F H
PALE	05	1800	1806	1822	S15	E53	.793		9.7	22	SF	3	C		39		
BIGB	05	1802	1818	1915	N22	W45	.798		2.4	73	SN		C	1818	80	1.2	

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OBSERV-ATORY	OBSERVED UT				LOCATION					DURA-TION	IM POR-TANCE	OBS.		MEASUREMENTS			REMARKS
	DAY	START	MAX. PHASE	END	APPROX. LAT.	APPROX. LONG. DIST.	CENTRAL DISTANCE	MCMATH PLAGE REGION	CMP. DAY	MIN.		COND.	TYPE	TIME UT	MEAS. AREA Mill. of Disk	CORR. AREA Sq. Deg.	
HOLL	05	1805	1818	1919	N18	W44	.769		2.5	74	1B	2	C		282		Z F
PALE	05	1814	1819	1855	N18	W45	.778		2.4	41	SF	3	C		73		FDE
PALE	05	1820	1820	1824	N16	W82	.995		27.6	4	SF	3	C		0		
PALE	05	1829	2009	2145	S14	E50	.761		9.5	196	SB	3	C		134		
BIGB	05	1836	1840	1847	S13	E47	.726		9.3	11	SB		C	1840	40	.6	
HOLL	05	1918	1919	1932	S12	E48	.737		9.4	14	SB	2	C		49		F H
HOLL	05	1935	1949	2020	S13	E50	.760		9.6	45	S3	2	C		90		F H
BIGB	05	1948	1950	1958	S15	E51	.772		9.7	10	SN		C	1950	50	.8	
HOLL	05	1952	1954	2001	N20	E17	.530		7.1	9	SN	2	C		31		F
HOLL	05	2028	2036	2108	N20	E17	.530		7.1	40	SB	3	C		184		DE
PALE	05	2028	2029	2038	N16	E 7	.411		6.4	10	SF	3	C		36		
PALE	05	2036	2038	2046	N19	E18	.525		7.2	10	SN	3	C		107		
HOLL	05	2046	2049	2145	N17	W44	.764		2.6	59	SB	3	C		122		
HOLL	05	2047	2049	2100	S20	E12	.297		6.8	13	SB	3	C		165		DE
PALE	05	2047	2049	2107	N18	W47	.797		2.3	20	SN	3	C		71		
PALE	05	2048	2049	2053	S23	E17	.386		7.1	5	SF	3	C		51		
HOLL	05	2059	2059	2104	S12	E49	.749		9.5	5	SB	3	C		28		DE
PALE	05	2112	2115	2127	N18	W47	.797		2.4	15	SF	3	C		61		
HOLL	05	2117	2148	2339	S12	E48	.737		9.5	142	2B	3	C		531		DE H
PALE	05	2136	2149	2326	S14	E49	.749		9.6	110	2B	3	C		462		F H
PALE	05	2149	2149	2153D	S14	E49	.749		9.6	4D	2B	3	C		535		FDE
PALE	05	2213	2213	2220	S22	E11	.312		6.8	7	SF	3	C		30		DE
BIGB	05	2243	2250	2323	S15	E51	.772		9.8	40	SB		C	2250	100	1.6	
BIGB	05	2244	2245	2251	S16	E90	.999		12.7	7	SN		C	2245	30		
PALE	05	2327	2333	2337	S14	E48	.738		9.6	10	SF	3	C		19		DE
HOLL	05	2342	2348	2358	S14	E45	.703		9.4	16	1B	3	C		235		DE H
BIGB	05	2346	2347	2353	S14	E43	.679		9.2	7	SB		C	2347	40	.6	
PALE	05	2347	2347	2356	S15	E43	.680		9.2	9	1B	3	C		235		F
BIGB	06	1540	1542	1549	S13	E36	.586		9.4	9	SF	1			50	.6	
BIGB	06	1631	1633	1647	S12	E35	.571		9.3	16	SF	1			25	.3	
BIGB	06	1638	1639	1715D	S11	E30	.498		8.9	37D	SF	1			25	.3	
BIGB	06	1823	1826	1848	S15	E40	.642		9.8	25	SF		C	1826	40	.5	
BIGB	06	1852	1855	1912D	S16	E40	.644		9.8	20D	SN		P	1855	100	1.3	
BIGB	06	1901	1902	1911	S15	E35	.576		9.4	10	SB		C	1902	20	.3	
BIGB	06	2004	2006	2042	S15	E39	.629		9.8	38	SN		C	2006	50	.7	
BIGB	06	2007	2008	2028	S16	E78	.972		12.7	21	SB		C	2008	20		
BIGB	06	2116	2122	2150	S12	E28	.469		9.0	34	SN		C	2122	20	.2	
BIGB	06	2141	2143	2208	S11	E38	.611		9.8	27	SN		C	2143	40	.5	
MANI	06	2310	2325	2343	S12	E23	.469		9.1	33	SN	3	C		100		
BIGB	06	2320	2323	2331D	S14	E29	.489		9.1	11D	SN		P	2323	60	.7	
MANI	07	0124E	0125	0127D	S13	E31	.515		9.4	3D	SN	3	C		40		F
ATHN	07	1150E	1152U	1222D	S18	E68	.920		12.6	32D	SB	3	C		32		DE
RAMY	07	1200	1201	1206	N17	W63	.919		2.8	6	SF	3	C		36		
RAMY	07	1204	1249	1302	S21	W 9	.280		6.8	58	SB	3	C		167		
RAMY	07	1205	1214	1228	S14	E25	.430		9.4	23	SB	3	C		64		
RAMY	07	1208	1209	1240	N24	E44	.800		10.8	32	SF	3	C		35		
ATHN	07	1209E	1210U	1240	S14	E23	.400		9.2	31D	SB	3	C		64		DE
ATHN	07	1339E	1340U	1400D	S17	E17	.330		8.8	21D	1B	3	C		222		DE
RAMY	07	1456	1459	1507	S14	E63	.884		12.3	11	SN	3	C		17		
RAMY	07	1508	1510	1525	S14	E24	.415		9.4	17	SN	3	C		22		
RAMY	07	1527	1528	1537	N17	W 7	.426		7.1	10	SN	3	C		27		
HOLL	07	1937	1941	1948D	S13	E24	.412		9.6	11D	SB	3	C		19		
HOLL	07	1937	1941	1957	S13	E20	.350		9.3	20	SB	3	C		19		DE
RAMY	07	1938	1941	1949	N20	W 9	.480		7.1	11	SN	3	C		29		
RAMY	07	1939	1942	1944D	S14	E25	.430		9.7	5D	SB	3	C		31		F
RAMY	07	1939	2036U	2136D	S13	E20	.350		9.3	117D	SB	3	C		213		FDE
HOLL	07	1945	1946	2025	N25	E43	.797		11.0	40	SN	3	C		27		
RAMY	07	1945	1945	2027	N24	E40	.766		10.8	42	SN	3	C		24		
HOLL	07	2000	2034	2038D	S12	E20	.347		9.3	38D	1B	3	C		196		DE
HOLL	07	2000	2002	2004D	S13	E24	.412		9.6	4D	SB	3	C		84		DE
HOLL	07	2010	2011	2033	N31	E67	.964		12.9	23	SN	3	C		15		
RAMY	07	2016	2016	2036D	S15	E60	.859		12.3	20D	SB	3	C		22		F
MANI	07	2235E	2235U	2250D	N17	W75	.978		2.3	15D	SF	2	C		20		
MANI	08	0045E	0045U	0105D	S14	E21	.370		9.6	20D	SF	3	V		100	1.1	F
MANI	08	0114	0116	0145	N30	E69	.970		13.2	31	1N	3	V		120	2.6	
MANI	08	0207E	0208	0220D	S13	E15	.288		9.3	13D	SN	3	V		60	.6	
MANI	08	0317E	0317U	0330D	S18	E58	.842		12.5	13D	SF	3	V		30	.5	F
MANI	08	0340E	0340U	0354	N22	E41	.763		11.2	14D	SF	3	V		20	.2	
MANI	08	0340E	0340U	0357D	S14	E22	.385		9.8	17D	SF	3	V		15	.2	

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OBSERVATORY	OBSERVED UT				LOCATION					DURATION	IMPORTANCE	OBS.		MEASUREMENTS			REMARKS
	DAY	START	MAX. PHASE	END	APPROX. LAT.	APPROX. MER. DIST.	CENTRAL DISTANCE	McMATH PLAGE REGION	CMP. DAY	MIN.		CONF.	TYPE	TIME UT	MEAS. AREA Mill. of Disk	CORR. AREA Sq. Deg.	
BUCA	08	0735		0805	S15	E10	.216		9.1	30	SN		C	0735	107	1.2	E
BUCA	08	0814		0824	S14	E14	.264		9.4	10	1N		C	0815	322	3.6	
BUCA	08	0842		1004D	S14	E15	.324		9.7	82D	2N		C	0914	644	7.4	
BIGB	08	1547	1555	1621	N32	E67	.965		13.7	34	SN		C	1555	60		
BIGB	08	1710	1712	1721	N11	W12	.372		7.8	11	SF	1			30	.3	
BIGB	08	1801	1804	1814	S13	E02	.106		8.9	13	SF	1			50	.5	
BIGB	08	1923	1926	1938	N23	E32	.689		11.2	15	SF	1			37	.4	
BIGB	08	1927	1929	1940	N23	E33	.698		11.3	13	SN		C	1929	30	.4	
BIGB	08	2030	2031	2040D	S18	W14	.298		7.8	10D	SF	1			37	.4	
BIGB	08	2033	2034	2042	S17	E15	.302		10.0	9	SN		C	2034	60	.6	
BIGB	08	2034		2100	S11	W02	.074		8.7	26	SF	1					
BIGB	08	2039	2041	2054	S11	W01	.068		8.8	15	SN		C	2041	40	.4	
BIGB	08	2156	2158	2253	N28	E26	.686		10.9	57	SN		C	2158	70	.8	
BIGB	08	2302	2303	2308D	N21	W24	.599		7.2	6D	SN	1			50	.5	
BIGB	08	2329	2331	2358D	S17	E45	.707		12.4	29D	1N	1			200	2.9	W
BIGB	08	2331	2332	2359D	S15	E47	.727		12.5	28D	SB		P	2332	80	1.2	
BIGB	08	2332	2340	2358D	S15	E02	.286		10.1	26D	1N	1	C		200	2.0	K
BIGB	08	2332	2333	2358D	S15	E02	.286		10.1	26D	SF	1	C		50	.5	K
BIGB	08	2341	2342	2358	S15	E02	.139		9.1	17	SN		C	2342	90	.9	
ISTA	09	0804		0837	S16	E40	.644		12.3	33	1N		P				D
BUCA	09	0805		0900D	S18	E40	.648		12.3	55D	SF		C	0822	107	1.6	
HOLL	09	1402	1405	1431	N28	E15	.617		10.7	29	SN	3	C		81		
HOLL	09	1418	1418	1426	N21	W31	.663		7.3	8	SN	3	C		53		
HOLL	09	1428	1429	1434	N19	W34	.676		7.1	6	SN	3	C		20		
HOLL	09	1438	1456	1456	N32	E47	.862		13.1	18	SB	3	C		63		
HOLL	09	1440	1448	1457	S17	E 5	.189		10.0	17	SB	3	C		58		
BIGB	09	1526	1628	1655D	N20	W39	.732		6.7	89D	SF	1			25	.3	
BIGB	09	1752E	1752E	1757	S11	W07	.137		9.2	5D	SF	1					
BIGB	09	1903	1906	1914	N12	W80	.990		3.8	11	SN		C	1906	60		
BIGB	09	1911E	1912	1912D	S17	E35	.581		12.4	10	SF	1			75	.9	
BIGB	09	1912	1913	1918	S16	E36	.592		12.5	6	SN		C	1913	50	.6	
BIGB	09	1923E		1951	N29	E51	.875		13.6	28D	SN	1					
BIGB	09	1923	1932	2027	N33	E55	.913		13.9	64	1B		C	1932	250	4.4	
BIGB	09	1923E		2023	N31	E51	.883		13.6	60D	SN	1					
HOLL	09	1925	1931	2000	N33	E52	.896		13.7	35	SB	3	C		152		U F
HOLL	09	1925	1931	1932D	N33	E53	.902		13.8	7D	SB	3	C		152		U F
HOLL	09	1926	1926	1931	S15	E 3	.144		10.0	5	SN	3	C		95		H
BIGB	09	1926	1927	1930	S18	E03	.193		10.0	4	SB		C	1927	40	.4	
BIGB	09	1954	1958	2038	S19	W43	.754		6.2	44	SB		C	1958	100	1.6	
HOLL	09	1955	1956	2023	S19	W48	.744		6.2	28	SN	3	C		88		
BIGB	09	2019	2023	2058	N12	W80	.990		3.8	39	SB		C	2023	50		
BIGB	09	2027E	2029	2040D	N29	E47	.848		13.4	13D	SN	1			75	1.1	
BIGB	09	2029	2035	2115	N30	E45	.839		13.2	46	SB		C	2035	50	.7	
BIGB	09	2029	2053	2325	S20	W59	.852		5.4	176	1B		C	2053	140	2.8	
HOLL	09	2032	2037	2046D	N33	E43	.842		13.1	14D	SB	3	C		74		F
HOLL	09	2035E	2045	2046D	S20	W57	.835		5.6	11D	SF	3	C		52		F
BIGB	09	2125	2130	2154	N22	W29	.653		7.7	29	SB		C	2130	30	.4	
BIGB	09	2125E	2127	2130D	N24	W29	.671		7.7	5D	SN	1			37	.4	
BIGB	09	2132	2133	2142	N15	E31	.615		12.2	10	SB		C	2133	30	.4	E
BIGB	09	2134	2149	2254	N16	E60	.897		14.4	80	1B		C	2149	140	2.8	
BIGB	09	2142	2143	2145	S15	W10	.216		9.2	3	SN		C	2143	30	.3	
HOLL	09	2142	2151	2153D	N18	E57	.880		14.2	11D	2N	3	C		454		F
HOLL	09	2142E	2154	2203D	S22	W56	.827		5.7	21D	SF	3	C		50		F
HOLL	09	2143	2143	2151	S14	W 3	.128		9.7	8	SF	3	C		30		
HOLL	09	2143	2154	2203D	S15	W10	.216		9.2	20D	SB	3	C		90		DE
BIGB	09	2154E	2155	2219	S16	W10	.227		9.2	25D	SB		P	2155	80	.8	
BIGB	09	2229	2236	2248	N35	E46	.870		13.4	19	SF		C	2236	70	1.0	
BIGB	09	2259	2300	2310	S18	E00	.187		10.0	11	SN		C	2300	10	.1	
HOLL	09	2310	2313	2322	N32	E40	.816		13.0	12	SF	2	C		25		
BIGB	09	2312	2314	2316D	S14	E10	.207		10.7	4D	SF				25	.3	
HOLL	09	2323	2323	2342D	S22	W42	.683		6.8	19D	SF	2	C		27		
MANI	10	0642E	0645	0656	S15	W13	.257		9.3	14D	1B	3	C		200		
MANI	10	0657E	0657U	0702D	N23	E14	.548		11.3	5D	SF	2	C		40		
BUCA	10	0705		0805	S15	W12	.243		9.4	60	1F		C	0718	214	2.4	E
ISTA	10	0710E		0733	S15	W15	.286		9.2	23D	SN		P				BE
ISTA	10	0710E		0735	S16	W05	.174		9.9	25D	SN		P				BE
ISTA	10	0906		0923	N33	E41	.829		13.5	17	SF		P				D
ISTA	10	0913		0923	N22	W40	.754		7.4	10	SF		P				E
ATHN	10	1201	1205	1241	S16	E25	.438		12.4	40	SB	3	C		111		F
ATHN	10	1217	1220	1237	S15	W17	.315		9.2	20	SB	3	C		127		F

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OBSERV-ATORY	OBSERVED UT				LOCATION					DURA-TION	IM POR-TANCE	OBS.		MEASUREMENTS			REMARKS
	DAY	START	MAX. PHASE	END	APPROX. LAT.	APPROX. MER. DIST.	CENTRAL DISTANCE	MCMATH PLAGE REGION	CMP. DAY	MIN.		COND.	TYPE	TIME UT	MEAS. AREA Mil. of Disk	CORR. AREA Sq. Deg.	
RAMY	10	1307E	1307U	1424	N18	E49	.815		14.2	77D	1B	3	C		394		FDE
ATHN	10	1317	1322	1355	N16	E50	.816		14.3	38	1B	3	C		206		U F
RAMY	10	1514	1528	1601	S17	W19	.358		9.2	47	SB	3	C		185		FDE
RAMY	10	1515	1548	1556	N13	E51	.815		14.5	41	SN	3	C		22		
BIGB	10	1524	1530	1549	S16	W21	.380		9.1	25	SB		C	1530	80	.9	
BIGB	10	1526	1527	1540	S25	E12	.361		11.5	14	SB		C	1527	50	.5	
RAMY	10	1549	1549	1609	N31	E34	.768		13.2	20	SN	3	C		23		
BIGB	10	1550	1555	1708	S19	W70	.932		5.4	78	SB		C	1555	80		
RAMY	10	1550	1606	1609D	S21	W67	.913		5.6	19D	1B	3	C		125		FDE
HOLL	10	1556	1626	1803	S19	W68	.920		5.6	127	1B	3	C		263		F
HOLL	10	1601	1603	1620	N18	W47	.797		7.1	19	SF	3	C		32		
HOLL	10	1624	1624	1643	N18	W48	.806		7.1	19	SF	3	C		21		
RAMY	10	1630	1655	1700	S14	W14	.264		9.6	30	SF	3	C		34		
HOLL	10	1716	1716	1726	S24	W51	.783		6.9	10	SF	3	C		15		
BIGB	10	1722	1724	1734	S19	W70	.932		5.5	12	SN		C	1724	90		
RAMY	10	1751	1753	1817	S19	W68	.920		5.6	26	SN	3	C		41		
BIGB	10	1753	1805	1822	S18	W60	.860		6.2	29	1N		C	1805	160	3.2	
HOLL	10	1803	1805	1814	S22	W55	.818		6.6	11	SN	3	C		61		
BIGB	10	1814	1815	1836D	N11	E50	.799		14.5	22D	1N	1			200	3.2	
HOLL	10	1815	1818	1829	N11	E47	.768		14.3	14	SN	3	C		33		
BIGB	10	1815	1816	1845	N10	E51	.805		14.6	30	SN		C	1816	60	1.0	
HOLL	10	1827	1834	1901	S14	E18	.324		12.1	34	SN	3	C		76		
HOLL	10	1830	1832	1846	S17	W25	.443		8.9	16	1B	3	C		243		
RAMY	10	1830	1832	1853	S18	W20	.379		9.3	23	SB	3	C		173		FDE
RAMY	10	1830	1832	1834D	S14	W15	.279		9.6	4D	SB	3	C		173		FDE
BIGB	10	1830	1832	1858	S17	W22	.400		9.1	28	1N	1			200	2.2	
BIGB	10	1830	1833	1858	S16	W22	.394		9.1	28	S3		C	1833	50	.6	
BIGB	10	1831	1834	1903	S17	E25	.443		12.6	32	SF		C	1834	30	.3	
BIGB	10	1831	1841	1925	S18	W60	.860		6.3	54	1B		C	1841	140	2.8	
BIGB	10	1842	1843	1848	S18	W11	.262		10.0	6	SF		C	1843	30	.3	
BIGB	10	1912	1923	1934	N11	E51	.808		14.6	22	SN		C	1923	30	.5	
BIGB	10	1939	1941	1956D	N22	W39	.745		7.9	17D	SN	1			75	.9	
BIGB	10	1940	1942	1953	N23	E41	.768		13.9	13	SN		C	1942	30	.4	
BIGB	10	2007	2011	2023	N18	E02	.428		11.0	16	SF		C	2011	40	.4	
BIGB	10	2022	2024	2040	S18	W57	.833		6.6	18	SB		C	2024	40	.8	
BIGB	10	2023	2026	2107D	N27	E01	.563		10.9	44D	SF	1			50	.5	
BIGB	10	2029	2032	2058	N18	E02	.428		11.0	29	SN		C	2032	60	.6	
BIGB	10	2033	2044	2107D	N28	E01	.577		10.9	34D	SF	1			37	.4	
BIGB	10	2041	2042	2057	S18	E11	.262		11.7	16	SN	1			25	.3	
HOLL	10	2042	2131	2232	S14	E16	.294		12.1	110	SB	3	C		182		DE
BIGB	10	2048	2135	2207	S14	E20	.355		12.4	79	SN	1			150	1.6	FK
BIGB	10	2048	2052	2207	S14	E20	.355		12.4	79	SF	1			100	1.1	FK
BIGB	10	2052	2056	2126	S15	E18	.330		12.2	34	SN		C	2056	60	.7	
BIGB	10	2058	2101	2101D	S18	E11	.262		11.7	3D	SN	1			37	.4	
BIGB	10	2058	2101	2109	S18	W12	.274		10.0	11	SN	1			12	.1	
BIGB	10	2100	2105	2118	S24	W60	.863		6.4	18	SB		C	2105	60	1.2	
BIGB	10	2113	2115	2135D	S18	W12	.274		10.0	22D	SN	1			33	.3	
BIGB	10	2129	2132	2227	S15	E18	.330		12.2	58	SB		C	2132	100	1.1	
BIGB	10	2145	2147	2150	S14	W21	.370		9.3	5	SN		C	2147	20	.2	
BIGB	10	2146	2147	2215D	S16	W13	.266		9.9	29D	SN	1			25	.2	
HOLL	10	2146	2146	2151	S14	W23	.400		9.2	5	SN	3	C		34		
HOLL	10	2148	2148	2159	N17	W58	.885		6.6	11	SF	3	C		17		
BIGB	10	2148	2149	2205	N18	W55	.865		6.8	17	SN		C	2149	70	.8	
BIGB	10	2151	2152	2201	N09	E43	.782		14.6	10	SN		C	2152	60	.9	
BIGB	10	2156	2157	2204	S24	W60	.863		6.4	8	SB		C	2157	20	.4	
BIGB	10	2158	2158	2202	S11	W23	.391		9.2	4	SF	1			15	.2	
HOLL	10	2205	2207	2216	S20	W76	.963		5.2	11	SN	3	C		0		
BIGB	10	2208	2211	2223	S18	W70	.932		5.7	15	SB		C	2211	90		
BIGB	10	2300	2302	2311	S18	E09	.240		11.6	11	SF	1			25	.3	
BIGB	10	2304	2306	2323	N31	E31	.748		13.3	19	SN		C	2306	20	.2	
HOLL	10	2321	2323	2336	S15	E15	.286		12.1	15	SN	3	C		60		
BIGB	10	2323	2325	2339	S13	W23	.396		9.2	16	SN		C	2325	30	.3	
BIGB	10	2326	2328	2328D	S13	W22	.381		9.3	2D	SF	1			66	.7	
HOLL	10	2328	2330	2338	S14	W24	.415		9.2	10	SB	3	C		84		
BIGB	10	2340	2341	2356	S16	W25	.438		9.1	16	SB		C	2341	40	.5	
HOLL	10	2341	2344	2344D	S15	W20	.360		9.5	3D	SN	3	C		29		
ATHN	11	0608E	0609U	0632	S33	W72	.945		5.9	24D	1B	3	C		0		DE
ISTA	11	0615E		0648	S17	W66	.906		6.3	33D	SN		P				BD
ISTA	11	0635		0702	S16	E13	.266		12.2	27	SF		P				E
ISTA	11	0655		0705	N28	W03	.579		11.1	10	SF		P				D
ISTA	11	0727		0740	S16	W27	.467		9.3	13	SF		P				E

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OBSERV-ATORY	OBSERVED UT				LOCATION					DURA-TION	IM-POR-TANCE	OBS.		MEASUREMENTS			REMARKS
	DAY	START	MAX. PHASE	END	APPROX. LAT.	APPROX. MER. DIST.	CENTRAL DISTANCE	MCMATH PLAGE REGION	CMP. DAY	MIN.		COND.	TYPE	TIME UT	MEAS. AREA Mill. of Disk	CORR. AREA Sq. Deg.	
ISTA	11	0745	0748	0756	S16	E10	.227		12.1	11	SN		P				E
ATHN	11	0748E	0749U	0802	S16	E 8	.204		11.9	14D	SB	3	C		48		DE
BUCA	11	0859		0926D	N22	W56	.884		7.2	27D	1N		C	0902	214	4.1	
ATHN	11	0901E	0902U	0915D	N15	E45	.764		14.8	14D	SB	3	C		143		DE
BUCA	11	0919		0926D	N27	W04	.566		11.1	7D	SF		C	0922	107	1.2	
RAMY	11	1250E	1255	1307	N12	E37	.663		14.3	17D	SB	3	C		0		FDE
ATHN	11	1300E	1301U	1308	S16	E 2	.156		11.7	8D	SB	3	C		20		DE
HOLL	11	1443	1443	1447	S15	E 6	.169		12.1	4	SF	3	C		21		
HOLL	11	1458	1458	1512	S26	W55	.824		7.5	14	SF	3	C		26		
HOLL	11	1505	1506	1511	N17	E30	.620		13.9	6	SB	3	C		104		
HOLL	11	1510	1517	1521	S19	W24	.440		9.8	11	SN	3	C		76		
HOLL	11	1517	1604	1635	S25	W51	.785		7.8	78	SN	3	C		70		
HOLL	11	1538	1541	1552	S16	E 7	.193		12.2	14	SN	3	C		62		
HOLL	11	1607	1613	1649	N15	W64	.922		6.9	42	SB	3	C		125		DE
BIGB	11	1609E	1616	1655D	N18	W60	.901		7.2	46D	SB		P	1616	50	1.0	
HOLL	11	1648	1650	1723	S17	E 4	.183		12.0	35	1B	3	C		262		DE
BIGB	11	1651	1653	1730	S16	E05	.174		12.1	39	SB		C	1653	70	.7	
HOLL	11	1728	1731	1744	S15	E 8	.191		12.3	16	SB	3	C		119		
BIGB	11	1730E	1731U	1741	S15	W10	.217		11.0	11D	SF	1			75	.7	W
RAMY	11	1730E	1731	1742	S15	E 8	.191		12.3	12D	SN	2	C		80		
HOLL	11	1805	1807	1813	S24	W63	.921		6.7	8	SN	3	C		25		
BIGB	11	1903	1904	1919	S08	W36	.583		9.1	16	SN	1			60	.7	W
BIGB	11	1930	1931	1950	S15	E05	.160		12.2	20	SN	1			60	.6	
HOLL	11	1931	1934	1943	S16	E 5	.174		12.2	12	SN	3	C		70		
BIGB	11	2111	2116U	2134	S15	E04	.151		12.2	23	SN	1			50	.5	
BIGB	11	2115	2117	2134	S15	E05	.160		12.3	19	SB		C	2117	50	.5	
BIGB	11	2138	2140	2140D	N28	E21	.651		13.5	2D	SN	1			50	.5	
BIGB	11	2140	2142	2157	N31	E22	.690		13.6	17	SN		C	2142	20	.2	
BIGB	11	2141	2144	2150	S17	W89	.999		5.2	9	SB		C	2144	30		
BIGB	11	2157	2202	2222	S16	W28	.481		9.8	25	SN	1			75	.8	
HOLL	11	2201	2202	2213	S19	W28	.494		9.8	12	SB	3	C		95		DE
BIGB	11	2201	2202	2220	S18	W27	.476		9.9	19	SB		C	2202	40	.5	
BIGB	11	2225		2240	N17	E38	.703		14.8	15	SN	1			100	1.3	FW
BIGB	11	2233	2252	2316D	N12	E33	.686		14.9	43D	SB		P	2252	40	.5	
HOLL	11	2237	2250	2307	N12	E30	.581		14.2	30	SN	3	C		34		
BIGB	11	2246	2259	2400D	N29	E20	.657		13.4	74D	SN	1			100	1.0	
BIGB	11	2247	2249	2304	S15	E02	.139		12.1	17	SN		C	2249	40	.4	
BIGB	11	2247	2248	2303	S15	E04	.151		12.2	16	SN	1			66	.6	
HOLL	11	2248	2249	2305	S14	E 2	.123		12.1	17	SN	3	C		49		
HOLL	11	2250	2255	2258	S24	W70	.933		6.7	8	SF	3	C		25		
BIGB	11	2250	2302	0000D	N30	E22	.680		13.6	70D	SN	1			50	.5	
BIGB	11	2256	2307	2316D	N31	E20	.679		13.5	20D	SB		P	2307	40	.4	
MANI	12	0115E	0115U	0132D	N32	E18	.680		13.4	17D	1N	3	C		350		F
MANI	12	0118	0128	0132D	S16	W28	.481		10.0	14D	SB	3	V		100	1.2	
ISTA	12	0800		0805	S16	W14	.280		11.3	5	SF		P				D
ISTA	12	0810	0817	0828	S15	E01	.136		12.4	18	1N		P				F
ISTA	12	0824		0830D	S13	W38	.613		9.5	6D	SN		P				F
HOLL	12	1543	1544	1551	S28	W74	.954		7.1	8	SN	3	C		0		
BIGB	12	1657	1658	1739	S18	W02	.190		12.6	42	SF	1			25	.3	
BIGB	12	1658	1659	1727	S18	W05	.205		12.3	29	SF	1			20	.2	
HOLL	12	1700	1701	1721	S17	W 3	.177		12.5	21	SN	3	C		37		
BIGB	12	1728	1729	1737	N29	E03	.602		13.3	9	SN	1			33	.3	
BIGB	12	1731	1732	1733	S14	W15	.279		11.6	2	SF	1			30	.3	
BIGB	12	1734	1735	1737	S14	W05	.146		12.4	3	SF	1			60	.6	
BIGB	12	1735	1737	1815D	N09	E23	.471		14.5	40D	SB	1			100	1.1	U
BIGB	12	1827	1828	1848	S16	W43	.681		9.5	21	SN	1			75	1.0	
BIGB	12	1829	1830	1900E	S26	W67	.915		7.7	31D	SN	1			15	.4	
BIGB	12	1900	1930	1956	N33	E55	.913		16.9	56	SF	1			37	.6	
BIGB	12	1936	1942	2056D	N13	E27	.553		14.8	80D	1B	1			200	2.3	WUF
BIGB	12	1940	1947	2056D	N10	E20	.444		14.3	76D	SN	1			100	1.1	F
PALE	12	1940E	1949U	2100	N11	E22	.477		14.5	80D	2B	3	C		497		U F
HOLL	12	1941	1942	1950	S15	W41	.655		9.7	9	SF	3	C		23		F
HOLL	12	1941	1949	2105	N13	E24	.519		14.6	84	2B	3	C		510		U F
BIGB	12	1943	1944	2056D	N00	E32	.541		15.2	73D	SN	1			75	.9	F
HOLL	12	2214	2231	2334	N25	E37	.747		15.7	80	1N	3	C		317		F
HOLL	12	2225	2227	2238	N33	E 8	.655		13.5	13	SF	3	C		46		F
PALE	12	2227	2230	2236D	N23	E37	.733		15.7	9D	1N	3	C		150		F
BIGB	12	2234E	2236U	2337	N24	E37	.740		15.7	63D	1B		P	2236	210	2.7	
PALE	13	0111	0120	0131	N23	W83	.998		6.8	20	SF	2	C		0		
RAMY	13	1130E	1135U	1158	N21	W79	.989		7.6	28D	SN	3	C		0		

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OBSERV-ATORY	OBSERVED UT				LOCATION					DURA-TION	IM POR-TANCE	OBS.		MEASUREMENTS			REMARKS
	DAY	START	MAX. PHASE	END	APPROX. LAT.	APPROX. MER. DIST.	CENTRAL DISTANCE	MCMATH PLAGE REGION	CMP. DAY	MIN.		COND.	TYPE	TIME UT	MEAS. AREA Mill. of Disk	CORR. AREA Sq. Deg.	
HOLL	13	1518E	1522U	1541	N19	W90	1.001		6.9	23D	1B	3	C		0		
RAMY	13	1535E	1540U	1552D	N19	W85	.999		7.3	17D	SB	3	C		0		Y
BIGB	13	1827	1829	1841	S25	W80	.978		7.8	14	SN		C	1829	60		A
BIGB	13	1944	1946	1948	N37	E34	.814		16.4	4	SN		C	1946	20	.2	
BIGB	13	2128	2129	2133	S19	W30	.522		11.6	5	SN		C	2129	20	.2	
BIGB	13	2203	2204	2232	S18	E16	.325		15.1	29	SN		C	2204	30	.3	
PALE	14	0235	0236	0237D	S19	W33	.561		11.6	2D	SF	3	C		30		U H
HOLL	14	1520E	1524	1540D	N17	W90	1.001		7.9	20D	SN	3	C		0		
BIGB	14	1545	1557	1618D	N20	E23	.579		16.4	33D	SN		P	1557	70	.8	
BIGB	14	1623	1625	1639	N35	W05	.675		14.3	16	SN		C	1625	30	.3	
BIGB	14	1929	1931	1945	N14	E18	.465		16.2	16	SN		C	1931	120	1.3	
BIGB	14	1930	1931	1935	S34	E25	.579		16.7	5	SN		C	1931	30	.3	
HOLL	14	1936	1936	1945	N14	E16	.446		16.0	9	SF	3	C		24		
HOLL	14	2014	2015	2025	N14	E01	.362		14.9	11	SF	3	C		60		
BIGB	14	2014	2016	2030	N14	E00	.361		14.8	16	SN		C	2016	50	.3	
BIGB	14	2023	2028	2110	N34	W15	.689		13.7	47	1B		C	2028	260	2.8	
HOLL	14	2024	2027	2109	N33	W16	.682		13.7	45	1B	3	C		356		DE
PALE	14	2024	2025	2030D	N31	W19	.668		13.5	6D	1B	3	C		205		DE
PALE	14	2024	2025	2046	N32	W13	.657		13.9	22	1B	3	C		205		DE
BIGB	14	2033	2036	2041	N26	W50	.855		11.1	8	SF		C	2036	30	.5	
HOLL	14	2036	2038	2040	N25	W51	.858		11.0	4	SF	3	C		20		
BIGB	14	2046	2050	2105	N23	E89	1.001		21.5	19	SN		C	2050	20		
BIGB	14	2116	2118	2142	N35	W10	.685		14.1	26	SB		C	2118	100	1.0	
HOLL	14	2246	2248	2306	S16	W42	.669		11.8	20	SN	3	C		123		F
BIGB	14	2246	2249	2341	S15	W40	.642		11.9	55	SN		C	2249	110	1.5	
PALE	14	2248E	2250U	2305D	S16	W39	.631		12.0	17D	SF	2	C		80		DE
BIGB	15	1617	1628	1705	N24	E76	.986		21.4	48	SN		C	1628	30		
BIGB	15	1642	1656	1758	N32	W27	.730		13.7	76	SB		C	1656	110	1.3	
HOLL	15	1651	1654	1717	N34	W25	.737		13.8	26	SB	2	C		125		UDE
BIGB	15	1712	1724	1741	N24	E76	.986		21.4	29	SN		C	1724	30		
BIGB	15	1929	1932	1951	N32	E22	.700		17.5	22	SF		C	1932	40	.4	
PALE	15	2021	2023	2025D	N 9	W16	.386		14.6	4D	1B	3	C		366		DE
BIGB	15	2022	2025	2142	N08	W12	.331		14.9	80	1B		C	2025	330	3.5	
BIGB	15	2115	2116	2137	N12	W17	.431		14.6	22	SN		C	2116	30	.3	
BIGB	15	2122	2149	2353D	N29	W38	.782		13.0	151D	2B		P	2149	430	5.6	
PALE	15	2131	2140U	2140D	N28	W36	.760		13.2	9D	1B	3	C		168		F
PALE	15	2131	2140U	2236	N31	W31	.747		13.6	65	1B	3	C		168		F
BIGB	15	2250	2256	2326	N36	W27	.767		13.9	36	SB		C	2256	60	.7	
PALE	15	2255	2300	2308	N31	W31	.747		13.6	13	SN	3	C		76		F H
PALE	16	0114	0116	0119	S15	W53	.793		12.1	5	SF	3	C		32		F
PALE	16	0124	0124	0131	S15	W53	.793		12.1	7	SF	3	C		24		F
BIGB	16	1556	1558	1606	S19	W67	.913		11.6	10	SN		C	1558	30		
BIGB	16	1751	1756	1805	S20	E90	.999		23.5	14	SN		C	1756	30		
BIGB	16	1840	1842	1850	N29	W01	.590		16.7	10	SB		C	1842	20	.2	
HOLL	16	1841	1842	1849	N29	W 2	.591		16.6	8	SN	3	C		52		
BIGB	16	1857	1858	1901D	N34	E01	.658		16.9	4D	SB		P	1858	30	.3	
HOLL	16	1858	1858	1914	N34	W 1	.658		16.7	16	SB	3	C		51		
PALE	16	1859	1859	1914	N35	W 1	.671		16.7	15	SB	3	C		50		F
PALE	16	2132	2139	2221	S12	W48	.738		13.3	49	SF	3	C		79		UDE
BIGB	16	2139E	2139U	2212D	S09	W45	.702		13.5	33D	1B		P	2139	170	2.5	
PALE	16	2156	2200	2206	N24	E60	.915		21.4	10	SF	3	C		22		F
PALE	16	2156	2158	2204	S20	E81	.982		23.0	8	SF	3	C		7		F
BIGB	16	2201	2212U	2212D	S20	E85	.992		23.3	11D	SN		P	2212	50		A
PALE	16	2356	2357	2359	S20	E81	.982		23.1	3	SF	3	C		0		DE
PALE	17	0022	0022	0026	N30	W 4	.606		16.7	4	SF	3	C		21		DE
PALE	17	0119	0121	0134	N23	E57	.894		21.3	15	SN	3	C		43		DE
MANI	17	0120	0125	0129D	N25	E56	.893		21.3	9D	SF	3	C		50		
PALE	17	0225	0241	0310	N29	W46	.840		13.7	45	1N	2	C		238		FDE
MANI	17	0229E	0245	0250D	N31	W45	.843		13.7	21D	1N	2	V		180	2.8	
MANI	17	0229E	0232U	0250D	N31	W45	.843		13.7	21D	SN	2	C		100		F
WEND	17	1415	1422	1458	S31	W14	.458		16.5	43	1N		C	1422	228	2.8	E
HOLL	17	1837	1838	1910	S10	W49	.749		14.1	33	SN	3	C		44		
PALE	17	1837	1840	1900	S 9	W49	.749		14.1	23	SF	3	C		46		U F
PALE	17	1842	1849	1853	S33	W15	.491		16.7	11	SF	3	C		93		F
HOLL	17	1906	1906	1927	S 3	W39	.630		14.9	21	SF	3	C		25		
HOLL	17	1912	1913	1929	S 7	W51	.773		14.0	17	SF	3	C		24		
PALE	17	1913	1913	1916	S 7	W50	.761		14.1	3	SF	3	C		19		F
PALE	17	1929	1949	1955	N10	W42	.710		14.7	26	SF	3	C		34		F

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OBSERVATORY	OBSERVED UT				LOCATION					DURATION	IMPORTANCE	OBS.		MEASUREMENTS			REMARKS
	DAY	START	MAX. PHASE	END	APPROX. LAT.	APPROX. MER. DIST.	CENTRAL DISTANCE	MCMATH PLAGE REGION	CMP. DAY	MIN.		COND.	TYPE	TIME UT	MEAS. AREA Mill. of Disk	CORR. AREA Sq. Deg.	
PALE	17	1930	1945	1956	S 7	W50	.761		14.1	26	SF	3	C		38		F
PALE	17	2000	2009	2013	S 7	W50	.761		14.1	13	SF	3	C		33		F
PALE	17	2030	2036	2040	N10	W42	.710		14.7	10	SN	3	C		39		F
PALE	17	2100	2100	2117	N23	E46	.810		21.3	17	SF	3	C		17		F
PALE	17	2215	2220	2239	N24	E45	.807		21.3	24	SF	3	C		29		F
PALE	18	0248	0248U	0259D	S 1	W42	.673		15.0	11D	SF	2	C		46		F
MANI	18	0704E	0704U	0707D	S 7	W56	.825		14.1	3D	SF	2	C		80		
BIGB	18	1625	1627	1640	S06	W63	.887		14.0	15	SN		C	1627	60	1.4	
BIGB	18	1626	1628	1650	N32	W67	.965		13.7	24	SN		C	1628	80		
HOLL	18	1629E	1629U	1659	S33	W26	.579		16.7	30D	SB	2	C		144		F
HOLL	18	1630	1652	1655	S10	W62	.877		14.0	25	SN	3	C		0		
BIGB	18	1841	1842	1851	S06	W63	.887		14.1	10	SN		C	1842	60	1.4	
BIGB	18	1854	1903	1940	S34	W28	.606		16.7	46	SN		C	1903	40	.5	
PALE	18	1854	1854	1858	N31	W17	.662		17.5	4	SF	3	C		26		DE
PALE	18	1902	1902	1909	S35	W28	.615		16.7	7	SF	3	C		19		DE
BIGB	18	1938	1941	1956	S02	W53	.799		14.8	18	SB		C	1941	110	1.9	
BIGB	18	2131	2132	2136	S01	W55	.821		14.8	5	SB		C	2132	30	.5	
PALE	18	2343E	2359U	0115	S 7	W62	.879		14.3	92D	1B	2	C		242		U F
ATHN	19	1155E	1156U	1157D	N32	W85	1.000		13.1	2D	SB	3	C		0		DE
HOLL	19	1533E	1536	1610D	N31	W29	.733		17.5	37D	SN	3	C		45		U F
HOLL	19	1915	1924	1945	N 9	W65	.919		14.9	30	1N	3	C		118		F
BIGB	19	1916	1918	1942	N13	W68	.942		14.7	26	SB		C	1918	40		
PALE	19	1917	1923	1935	N12	W66	.929		14.9	18	SF	3	C		38		DE
BIGB	19	2001	2003	2011	S32	W43	.732		16.6	10	SB		C	2003	20	.3	
BIGB	19	2022	2025	2052	S32	W47	.769		16.3	30	SB		C	2025	40	.5	
BIGB	19	2258	2259	2310	S32	W47	.769		16.4	12	SB		C	2259	30	.5	
PALE	19	2258	2301U	2306	S32	E48	.778		23.6	8	SN	3	C		32		DE
PALE	19	2339	2340	0011D	N31	W33	.760		17.5	32D	SF	3	C		48		F
MANI	20	0612E	0615U	0627D	N29	W33	.744		17.8	15D	SN	3	C		100		F
ISTA	20	0615E		0624	N33	W32	.769		17.9	9D	SF		P				E
HOLL	20	1706E	1707U	1707D	S35	W54	.836		16.7	1D	SN	2	C		45		F
BIGB	20	1739	1747	1853	S30	W59	.864		16.3	74	SB		C	1747	70	1.4	
BIGB	20	1858	1859	1915	S32	W47	.769		17.3	17	SB		C	1859	40	.6	
HOLL	20	2123	2129	2142	S36	W56	.853		16.7	19	SN	2	C		49		F
PALE	20	2124	2128	2138	S34	W55	.841		16.8	14	SN	3	C		29		DE
BIGB	20	2124	2126	2207	S33	W47	.773		17.4	43	SB		C	2126	50	.8	
BIGB	20	2126	2131	2137	N13	W88	1.000		14.3	11	SN		C	2131	20		
BIGB	20	2126	2129	2131	N14	W67	.938		15.9	5	SN		C	2129	30		
BIGB	20	2234	2237	2251	S33	W58	.861		16.6	17	SB		C	2237	90	1.1	
HOLL	20	2236	2236	2241	S34	W57	.856		16.7	5	SF	3	C		26		
PALE	20	2303	2305	2306	S33	W56	.847		16.8	3	SF	3	C		22		F
PALE	21	0117	0121	0125	N31	W46	.849		17.6	8	SF	3	C		21		F
HOLL	21	1546	1626	1646	S24	E24	.479		23.5	60	SF	3	C		73		
BIGB	21	1604	1606	1636	S33	W70	.936		16.4	32	SB		C	1606	40		
HOLL	21	1604	1606	1639	S35	W67	.922		16.6	35	1N	3	C		0		F
HOLL	21	1805	1807	1826	N 8	W72	.958		16.4	21	SF	3	C		0		
HOLL	21	1826	1827	1830	S16	E13	.268		22.7	4	SF	3	C		25		
BIGB	21	2149	2158	2207	S34	W70	.937		16.7	18	SB		C	2158	30		
BIGB	21	2223	2226	2251	S16	W09	.218		21.3	28	SB		C	2226	50	.5	
PALE	21	2225	2230	2249	S18	E14	.301		23.0	24	SN	3	C		151		F H
MANI	22	0703E	0703U	0717D	S28	E25	.525		24.2	14D	SF	3	C		30		
MANI	22	0709E	0710	0717D	S13	W57	.832		18.0	8D	SF	3	C		15		
ISTA	22	0729		0740	S32	W85	.990		15.9	11	SN		P				A
ISTA	22	0741		0800	S17	E07	.210		22.8	19	SF		P				E
ISTA	22	0805		0816	S27	E24	.505		24.1	11	SF		P				D
HOLL	22	1445	1448	1521	N10	W67	.933		17.6	36	SF	2	C		33		
BIGB	22	1532	1534	1547	N32	W68	.968		17.5	15	SB		C	1534	120		
HOLL	22	1535	1538	1548	N 9	W67	.931		17.6	13	SF	2	C		39		
BIGB	22	1536	1538	1545	N13	W70	.953		17.4	9	SB		C	1538	30		
HOLL	22	1643	1645	1659	N30	W65	.953		17.8	16	SF	3	C		32		
BIGB	22	1643	1644	1654	N33	W65	.958		17.8	11	SB		C	1644	20		
BIGB	22	1820	1821	1827	N34	W68	.971		17.7	7	SB		C	1821	30		
HOLL	22	1821	1821	1826	N32	W67	.964		17.7	5	SF	3	C		26		
HOLL	22	1832	1848	1900	S19	E 0	.208		22.8	28	SF	3	C		35		F
PALE	22	1938	1939	1942	N13	W70	.953		17.6	4	SF	3	C		13		F
HOLL	22	2036	2038	2041	N31	W66	.959		17.9	5	SF	3	C		17		
HOLL	22	2251	2251	2311	S16	W 2	.160		22.8	20	SF	3	C		31		

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OBSERV-ATORY	OBSERVED UT				LOCATION					DURA-TION	IM POR-TANCE	OBS.		MEASUREMENTS			REMARKS
	DAY	START	MAX. PHASE	END	APPROX. LAT.	APPROX. MER. DIST.	CENTRAL DISTANCE	McMATH PLAGE REGION	CMP. DAY	MIN.		COND.	TYPE	TIME UT	MEAS. AREA Mill. of Disk	CORR. AREA Sq. Deg.	
WEND	23	0815E		0849	N24	W27	.651		21.3	34D	SF		P	0815	100	1.3	
WEND	23	0904	0908	0914	N33	W67	.966		18.4	10	SN		C	0908	70		
WEND	23	0943	0944	0953	S17	W10	.242		22.7	10	SN		C	0944	25	.3	
WEND	23	1209	1216	1233	N34	W67	.967		18.5	24	1N		C	1216	160		
BIGB	23	1647	1649	1716	S25	E02	.312		23.8	29	SF		C	1649	60	.6	
BIGB	23	1750	1757	1838	S25	E03	.314		24.0	48	SN		C	1757	40	.4	
PALE	23	1756	1818	1834	S24	E 2	.295		23.9	38	SF	3	C		29		F
PALE	23	1939	1941	1959	S25	E 1	.310		23.9	20	SF	3	C		29		F
BIGB	23	2142	2143	2207	N15	W32	.624		21.5	25	SN		C	2143	70	.9	
PALE	23	2142	2146	2152	N13	W31	.598		21.6	10	SF	3	C		82		F
PALE	23	2156	2157	2210	S25	E 0	.310		23.9	14	SF	3	C		27		DE
BIGB	23	2203	2205	2229	S24	W04	.300		23.6	26	SN		C	2205	70	.7	
BIGB	23	2212	2214	2218	N32	W88	1.001		17.3	6	SB		C	2214	40		A
BIGB	23	2212	2214	2245	S15	E23	.406		25.7	33	SF		C	2214	40	.4	
BIGB	23	2218	2220	2230	S16	W16	.310		22.7	12	SN		C	2220	60	.6	
BIGB	23	2322	2330	2344D	N15	W33	.635		21.5	22D	SN		P	2230	70	.9	
PALE	24	0051E	0052	0054	N31	W78	.993		18.2	3D	SF	3	C		28		DE
ISTA	24	0800E		0810D	N14	W38	.684		21.5	10D	SN		P				E
HOLL	24	1552	1600	1631	S14	W25	.431		22.8	39	SF	3	C		71		F
BIGB	24	1553	1556	1617	S15	W24	.421		22.9	24	SN		C	1556	60	.7	
BIGB	24	1612	1618	1639	N14	W44	.748		21.4	27	SN		C	1618	40	.6	
HOLL	24	1714	1717	1733	N17	E 5	.414		25.1	19	SF	3	C		27		
BIGB	24	1730	1732	1748	N25	W19	.600		23.3	18	SN		C	1732	30	.3	G
HOLL	24	1755E	1802	1805D	N11	E46	.757		28.2	10D	SB	3	C		87		
BIGB	24	1755	1758	1834	N11	E46	.757		28.2	39	SN		C	1758	50	.7	
PALE	24	1802E	1804	1813	N11	E44	.735		28.1	11D	SN	4	C		31		DE
HOLL	24	1802	1802	1826	N11	E46	.757		28.2	24	SB	3	C		87		
BIGB	24	1841	1846	1855	N17	E02	.407		24.9	14	SF		C	1846	70	.7	
BIGB	24	1932	1939	1957	N13	E45	.764		28.3	25	SN		C	1939	20	.3	
BIGB	24	2139	2145	2159	N19	E02	.438		25.1	20	SN		C	2145	40	.4	
PALE	24	2244	2245	2304D	N31	W90	1.002		18.2	20D	SF	3	C		0		
HOLL	24	2244	2245	2252	N31	W90	1.002		18.2	8	SB	3	C		0		
MANI	24	2245E	2245U	2252D	N32	W90	1.002		18.2	7D	SF	2	C		0		
MANI	24	2252E	2257	2318D	N12	E43	.728		28.2	26D	SF	2	C		40		
HOLL	24	2252	2258	2315D	N11	E43	.724		28.2	23D	SN	3	C		63		
PALE	24	2256	2257	2317	N12	E42	.717		28.1	21	SF	3	C		40		F
WEND	25	1011E		1033	N12	E37	.661		28.2	22D	SN		C	1011	112	1.5	
ATHN	25	1015E	1016U	1028D	N11	E43	.724		28.7	13D	SB	2	C		64		
BIGB	25	2020	2022	2034	S26	W22	.475		24.2	14	SN		C	2022	30	.3	
BIGB	25	2154	2155	2213	N13	W62	.904		21.3	19	SB		C	2155	30	.7	
BIGB	25	2201	2202	2228	S15	W43	.705		22.5	27	SN		C	2202	30	.4	
PALE	26	0023	0026	0120	S20	W40	.655		23.0	57	SN	3	C		58		U F
BIGB	26	1602	1604	1627	S15	W55	.814		22.5	25	SB		C	1604	30	.5	
BIGB	26	1850	1853	1913D	S27	W35	.627		24.2	23D	SN		P	1853	90	1.1	
HOLL	26	1852	1853	1901	S28	W33	.612		24.3	9	SF	3	C		40		
HOLL	26	2010	2011	2016	S13	W24	.413		25.0	6	SF	3	C		32		
HOLL	27	1552	1553	1616	S24	W54	.814		23.6	24	SN	3	C		34		
BIGB	27	1838	1846	1855	S13	W39	.628		24.9	17	SF		C	1846	40	.5	
BIGB	27	2137	2143	2205	S30	W50	.791		24.2	28	SB		C	2143	30	.5	
PALE	28	0040	0041	0044	S25	W60	.866		23.5	4	SF	3	C		17		F
BIGB	28	1718	1722	1803	S17	W50	.764		25.0	45	SN		C	1722	80	1.3	
HOLL	28	1917	1923	1927	S15	W51	.773		25.0	10	SN	3	C		20		
HOLL	28	1950	1951	2000	S15	W51	.773		25.0	10	SN	3	C		22		
BIGB	28	2333	2339	2348D	S15	W54	.804		24.9	15D	1N		P	2339	120	2.1	
PALE	29	0025E	0025U	0034	S16	W54	.805		25.0	9D	SF	3	C		21		DE
WEND	29	0746E		0830D	S15	W57	.833		25.0	44D	1N		V		190	3.7	
WEND	29	1059	1101	1113	S15	W59	.852		25.0	14	SN		C	1101	68	1.4	
ATHN	29	1105E	1107U	1112D	S14	W59	.851		25.0	7D	SB	3	C		64		
WEND	29	1154	1220	1234	S18	E66	.907		3.4	40	SF		C	1220	62		
BIGB	29	1638	1644	1659	S15	W66	.907		24.7	21	SB		C	1644	30		
BIGB	29	2004	2008	2023	S18	W83	.989		23.6	19	SN		C	2008	60		A
HOLL	29	2008E	2009	2016	S19	W81	.980		23.8	8D	SN	3	C		0		
RAMY	29	2011	2025	2032D	S21	W83	.988		23.6	21D	SF	3	C		0		
HOLL	29	2051	2052	2132	S16	E47	.730		2.4	41	SB	3	C		111		
BIGB	29	2051	2052	2155	S19	E45	.712		2.2	64	1B		C	2052	150	2.2	
HOLL	29	2103	2103	2115	S14	E34	.562		1.4	12	SF	3	C		33		

Hα SOLAR FLARES

NOVEMBER 1979

OBSERV-ATORY	OBSERVED UT				LOCATION					DURA-TION	IM-POR-TANCE	OBS.		MEASUREMENTS			REMARKS
	DAY	START	MAX. PHASE	END	APPROX. LAT.	APPROX. MER. DIST.	CENTRAL DISTANCE	McMATH PLAGE REGION	CMP. DAY	MIN.		COND.	TYPE	TIME UT	MEAS. AREA Mill. of Disk	CORR. AREA Sq. Deg.	
BIGB	29	2119	2120	2126	S25	E73	.950		4.4	7	SN		C	2120	30		
BIGB	30	1615	1617	1644	S11	E23	.393		1.4	29	SN		C	1617	30	.3	
BIGB	30	1703	1707	1725	S11	E23	.393		1.4	22	SN		C	1707	30	.3	
BIGB	30	1807	1925	1938	N28	E22	.651		1.4	91	SN		C	1925	20	.2	
BIGB	30	1923	1925	1938	N28	E22	.651		1.5	15	SN		C	1925	20	.2	
BIGB	30	1934	1935	1944	N12	W08	.347		30.2	10	SN		C	1935	20	.2	
PALE	30	2009	2012	2021	S16	E72	.945		5.2	12	SF	3	C		20		F
BIGB	30	2023	2025	2039	S11	E21	.361		1.4	16	SN		C	2025	30	.3	
PALE	30	2025	2027	2031	S14	E22	.388		1.5	6	SF	3	C		37		DE
PALE	30	2026	2027	2030	S15	E73	.951		5.3	4	SF	3	C		11		F
BIGB	30	2102	2108	2121	S24	E90	.999		6.6	19	SB		C	2108	30		
PALE	30	2116	2121	2122	N19	E57	.881		4.2	6	SF	3	C		19		
BIGB	30	2126	2130	2152	S11	E09	.172		31.6	26	SN		C	2130	30	.3	
BIGB	30	2149	2150	2153D	S24	E90	.999		6.7	4D	SB		P	2150	20		

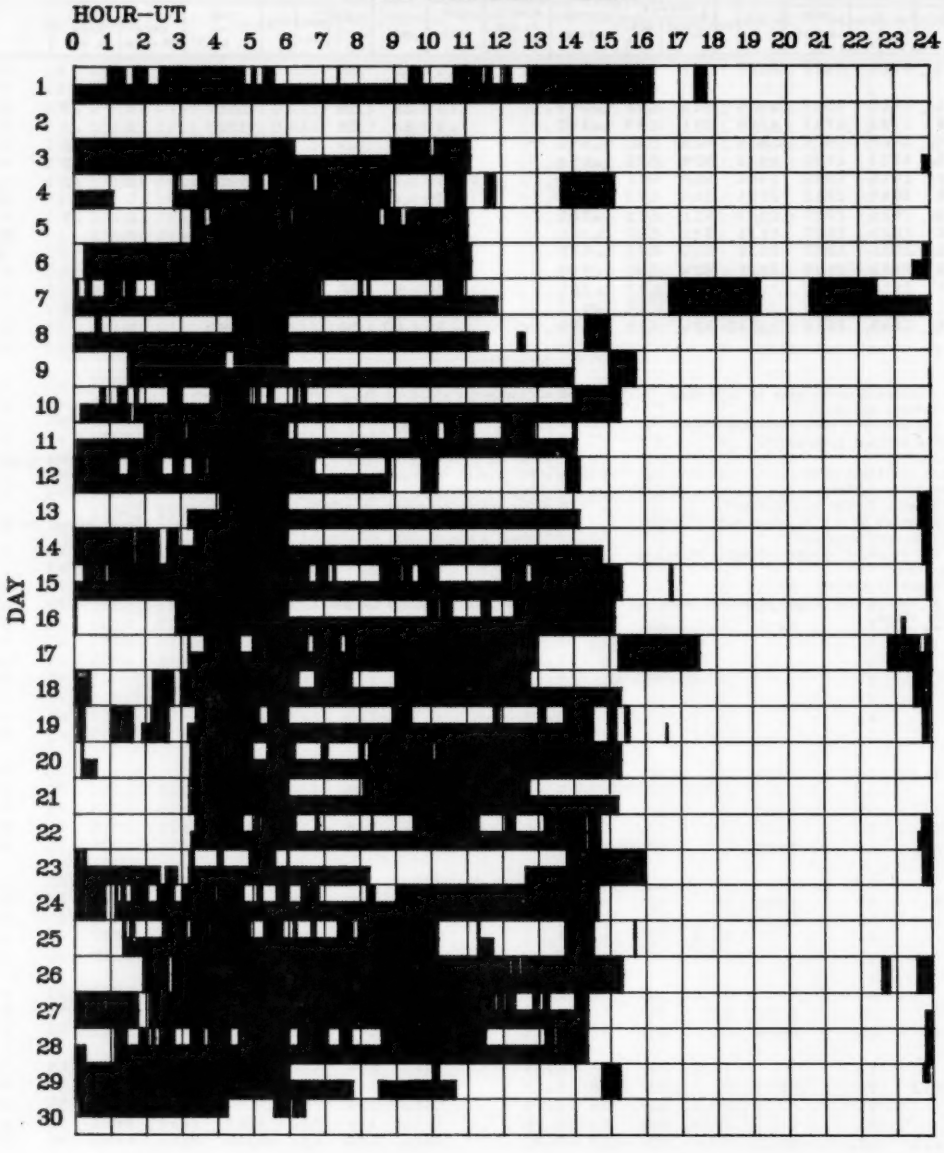
"Remarks":

A = Eruptive prominence whose base is less than 90° from central meridian.
B = Probably the end of a more important flare.
C = Invisible 10 minutes before.
D = Brilliant point.
E = Two or more brilliant points.
F = Several eruptive centers.
G = No visible spots in the neighborhood.
H = Flare accompanied by a high speed dark filament.
I = Active region very extended.
J = Distinct variations of plage intensity before or after the flare.
K = Several intensity maxima.
L = Existing filaments show signs of sudden activity.
M = White-light flare.
N = Continuous spectrum shows effects of polarization.
O = Observations have been made in the calcium II lines H and K.
P = Flare shows helium D_3 in emission.
Q = Flare shows the Balmer continuum in emission.
R = Marked asymmetry in Hα line suggests ejection of high velocity material.
S = Brightness follows disappearance of filament (same position).
T = Region active all day.
U = Two bright branches, parallel (||) or converging (Y).
V = Occurrence of an explosive phase: important and abrupt expansion in about a minute with or without important intensity increase.
W = Great increase in area after time of maximum intensity.
X = Unusually wide Hα line.
Y = System of loop-type prominences.
Z = Major sunspot umbra covered by flare.

INTERVALS OF NO FLARE PATROL OBSERVATION

FOR PRECEDING SOLAR FLARE TABLE

NOVEMBER 1979



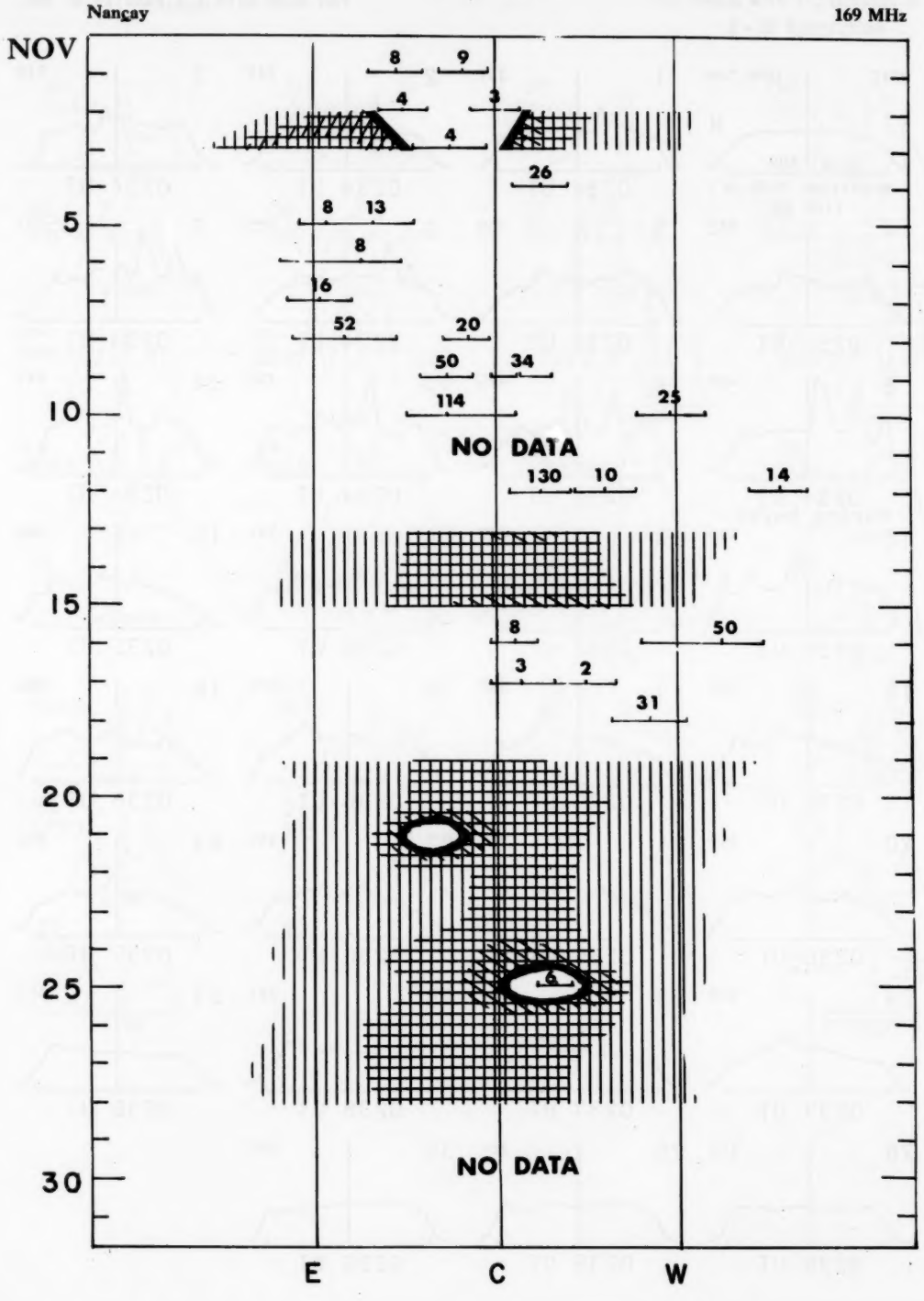
Observatories included in total patrol:

Athenes	Bucharest	Istanboul	Palehua	Upice
Big Bear	Holloman	Manila	Ramey	Wendelstein

Times of no flare patrol are shown by the shaded area for each day divided into times of no cinematographic patrol (bottom half of day) and times of neither visual no cinematographic patrol (top half of day).

SOLAR RADIO EMISSION
INTERFEROMETRIC OBSERVATION

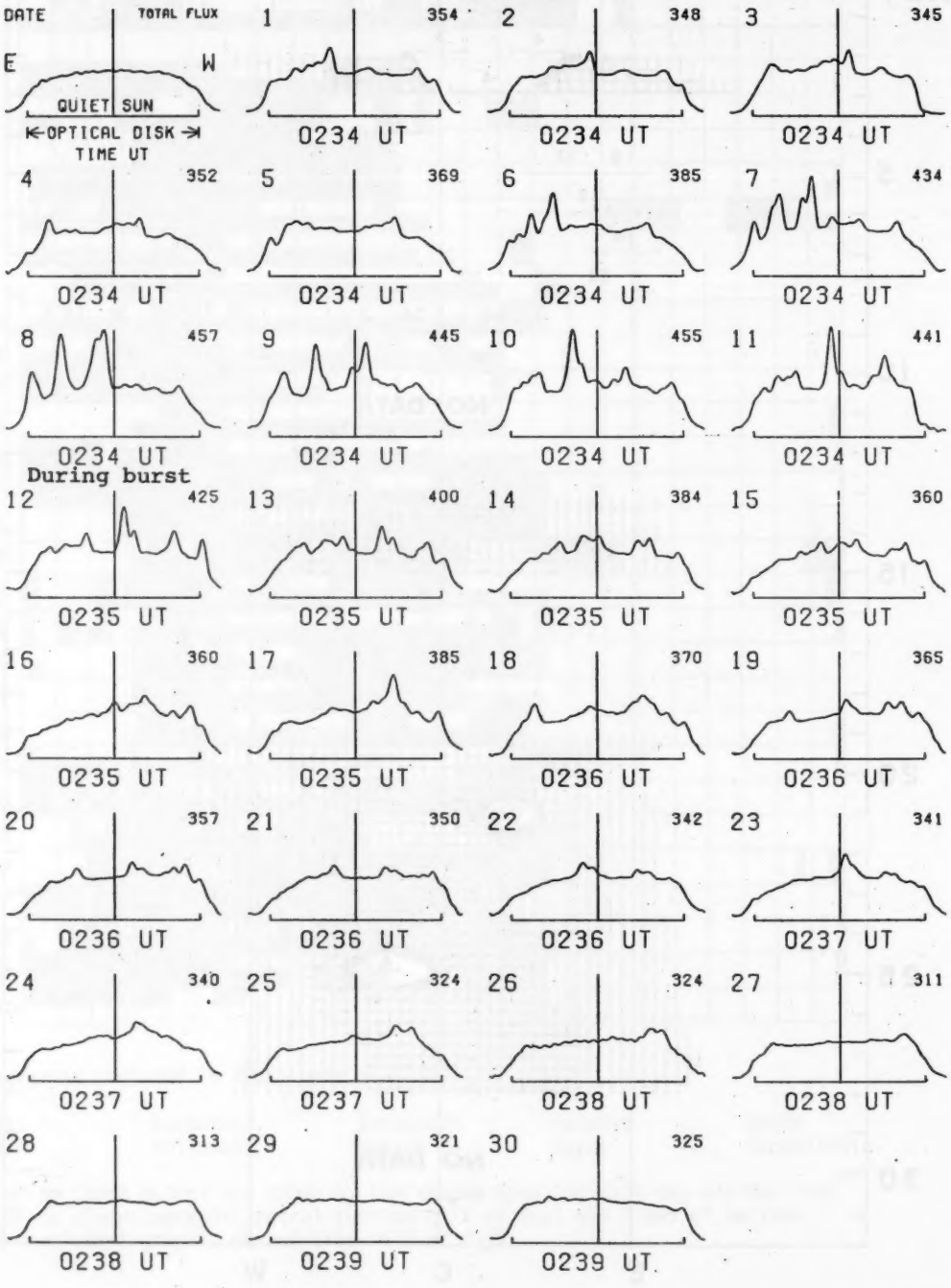
NOVEMBER 1979



EAST-WEST SOLAR SCANS
NOVEMBER 1979

TOYOKAWA, JAPAN

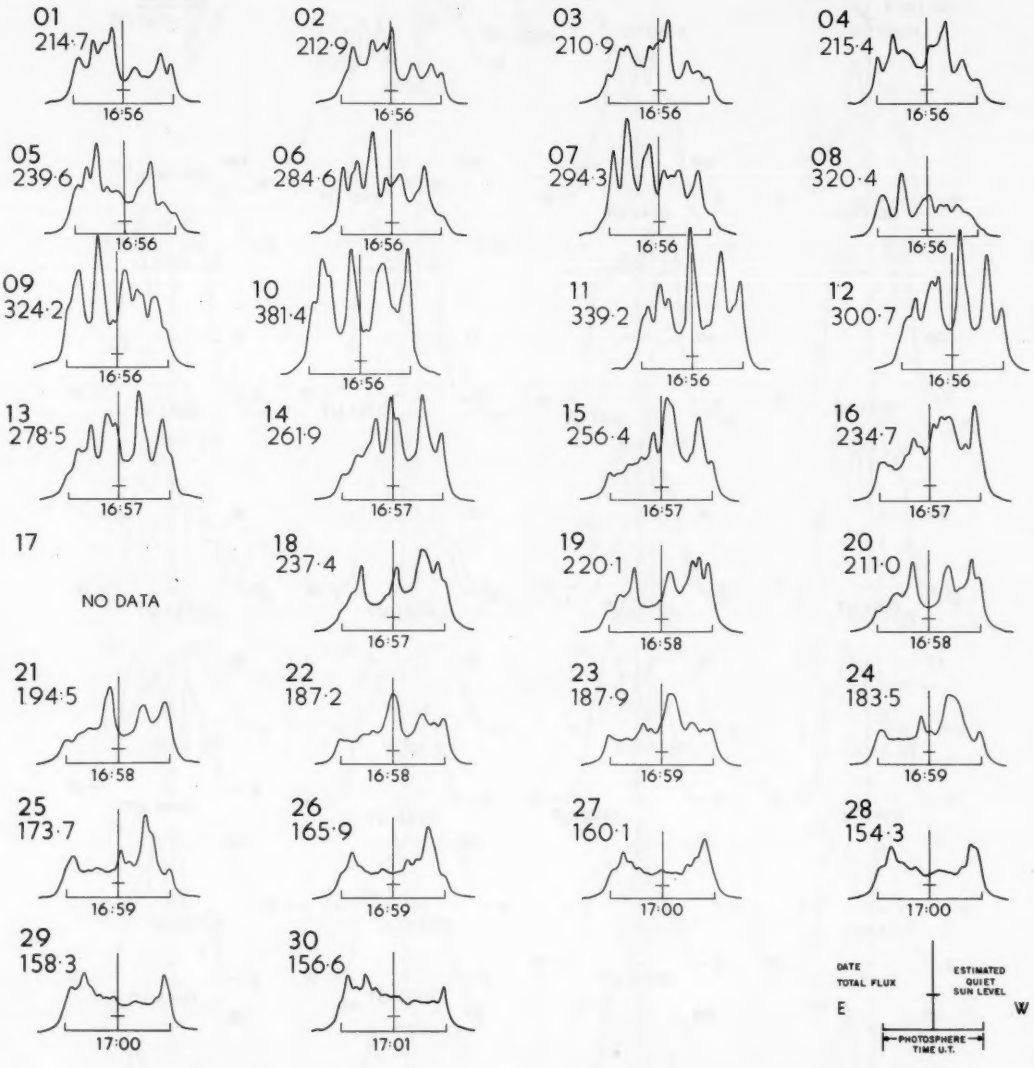
3 CM
FAN BEAM WITH 1.1 MINUTES OF ARC



EAST-WEST SOLAR SCANS
NOVEMBER 1979

ALGONQUIN RADIO OBSERVATORY
CANADA

10·7 cm
Fan Beam with 1·5 minutes of arc
E-W Resolution



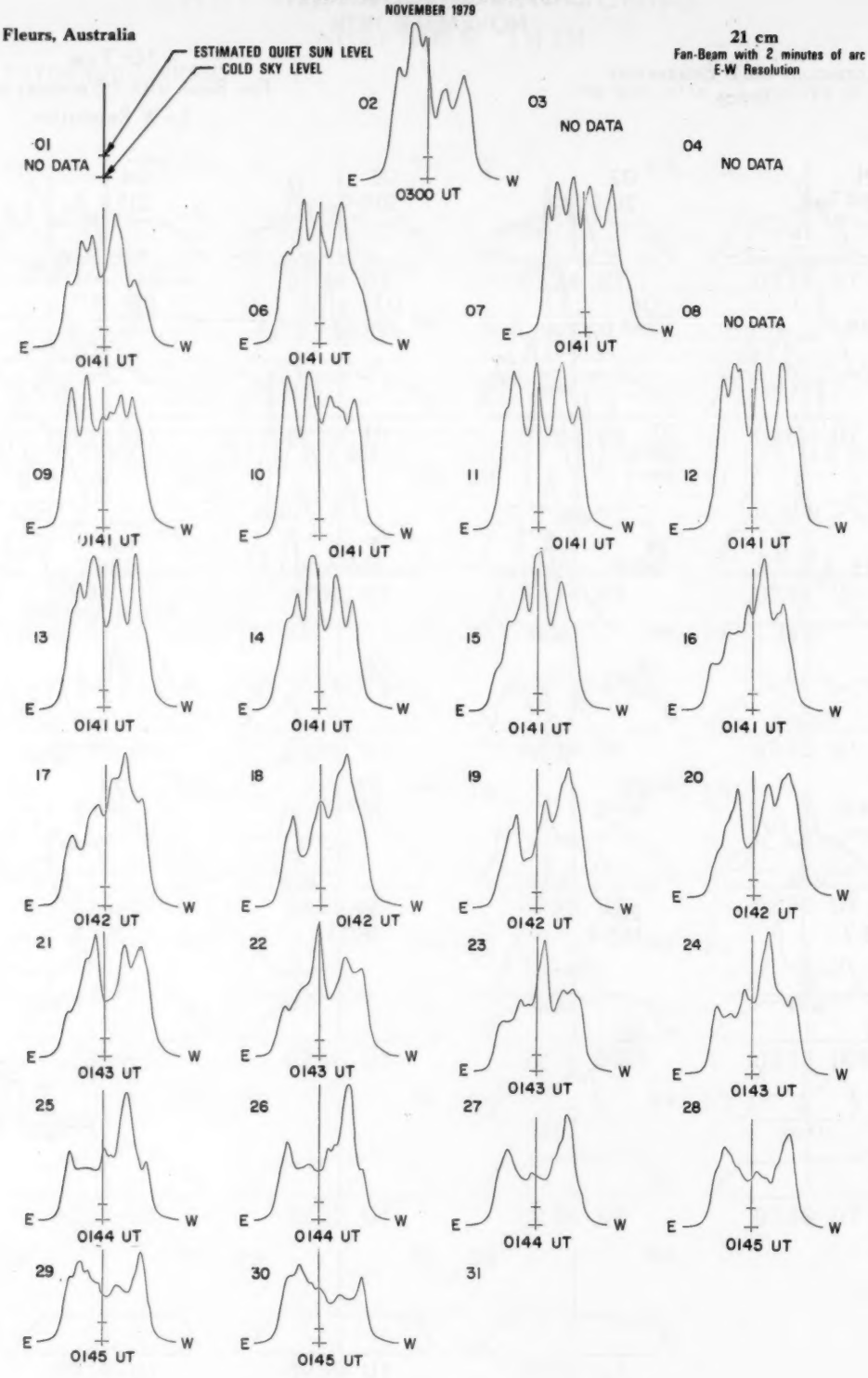
28
Nov 79

EAST-WEST SOLAR SCANS

NOVEMBER 1979

Fleurs, Australia

21 cm
Fan-Beam with 2 minutes of arc
E-W Resolution

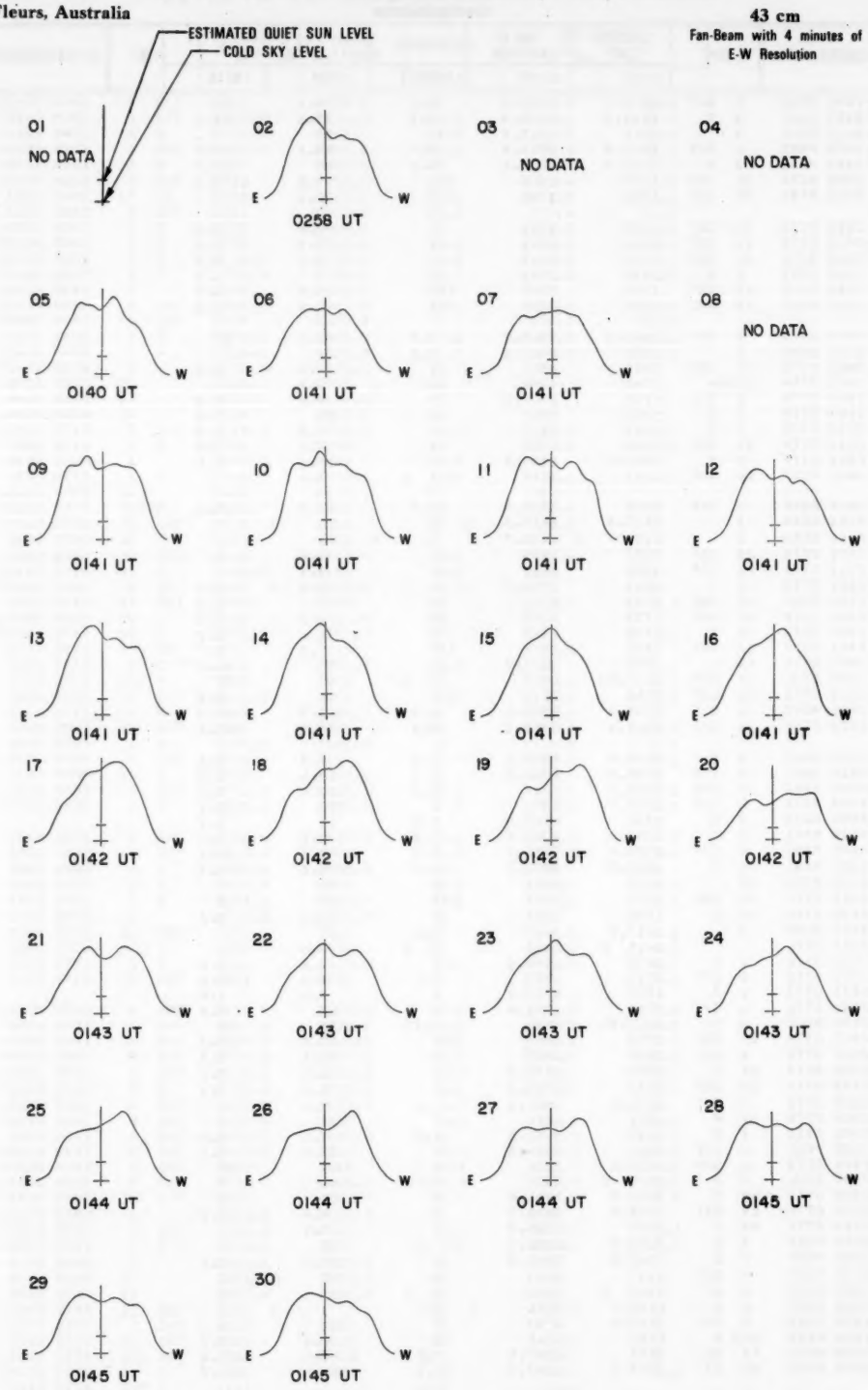


EAST-WEST SOLAR SCANS

NOVEMBER 1979

Fleurs, Australia

43 cm
Fan-Beam with 4 minutes of arc
E-W Resolution



SOLAR RADIO EMISSION
SELECTED FIXED FREQUENCY EVENTS
NOVEMBER 1979

DAY OF MONTH	FREQUENCY	STATION	TYPE	STARTING TIME	TIME OF MAXIMUM	DURATION	FLUX DENSITY 10^{-22} Wm^{-2} Hz^{-1}		INT	REMARKS
				UT	UT	MINUTES	PEAK	MEAN		
1	2695	MANI	4 S/F	0034.7	0036.2	4.3	30.1	10		
	8800	MANI	3 S	0034.7	0035.4	4.3	30.2	10.1		
	8400	BERN	3	0810	0815.3	32	97			
	2695	MANI	4 S/F	0812.3	0815.6	9.7	88.8	29.6		
	8800	MANI	3 S	0812.9	0815.6	9.1	68	22.7		
	2800	OTTA	20 GRF	1330	1355	140	7.6	4.2		
	2800	OTTA	20 GRF	1840	1950	270 D	6.8			
2	2800	OTTA	20 GRF	1430	1510	75	2.8	1.4		
	2800	OTTA	21 GRF	1610	1650	80	2.8	1.6		
	2800	OTTA	20 GRF	1637	1640	11	4.8	2.3		
	2800	OTTA	1 S	1757	1759	3	3	1.5		
	2800	OTTA	20 GRF	1920	2035	105	2.6	1.5		
	2695	PENT	20 GRF	2135	2155	45	2.6	1.3		
3	2800	OTTA	4 S/F	1441.5	1442.2	2.5	47.8	15		
	8400	BERN	1	1442	1442.6	1.5	20			
	2800	OTTA	20 GRF	1510	1517	20	4.6	2.3		
	2800	OTTA	240AR	1746	1756	10	5.8			
	2800	OTTA	2 S/F	1746	1748.5	9	8.6	4.3		
	2800	OTTA	3 S	1801	1802	5	15	7.2		
	2800	OTTA	1 S	1810	1811	4	5.8	2.9		
	2800	OTTA	21 GRF	1945	1958	48	3.6	1.8		
	2800	OTTA	1 S	1952.5	1953.5	4	2.8	1.4		
	2695	PENT	20 GRF	2145	2150	130 D	7.4			
4	2695	MANI	4 S/F	0506	0508.4	18.5	51.2	17.1		
	8400	BERN	3	0807.3	0807.5	2	50			
	8400	BERN	3	1038	1038.7	4	53			
	2800	OTTA	20 GRF	1427	1445	70	5.2	3		
	2800	OTTA	22 GRF	1550	1620	40	3.4			
	2800	OTTA	1 S	1703	1703.7	2	2.6	1.3		
	2695	PENT	21 GRF	1703	1711	12	3.6	1.8		
	2800	OTTA	21 GRF	1735	1745	12	3.6	1.8		
	2800	OTTA	1 S	1736	1738	5	4.4	2.2		
	2800	OTTA	21 GRF	1800	1845	120	5.2	2.7		
	2800	OTTA	45 C	1801	1806.2	24	86	41.5		
	2695	BOUL	22 GRF	1804.5E	1812	19 D	52	17		
	2800	OTTA	22 GRF	2040	2054	140	15	3.8		
	2695	MANI	4 S/F	2348.8	2350.2	4.9	165.8	55.3		
	8800	MANI	4 S/F	2348.8	2350.2	4.9	38.8	12.9		
5	2695	MANI	3 S	0038.5	0040.1	2.8	7.8	2.6		
	8800	MANI	4 S/F	0038.5	0040.1	1.8	19.4	6.5		
	2695	MANI	4 S/F	0200.7	0201	2.3	23.4	7.8		
	8800	MANI	4 S/F	0200.7	0201	1	46	15.3		
	2695	MANI	3 S	0345	0345.9	2.5	17	5.7		
	8800	MANI	1 S	0345	0345.8	2.5	8.4	2.8		
	2695	MANI	4 S/F	0528.5	0533.3	5.9	57.5	19.2		
	8800	MANI	1 S	0532.3	0533.7	2.7	4.2	1.4		
	8400	BERN	45	1250	1303	25	52			
	2800	OTTA	21 GRF	1250	1440	220	14	7		
	2800	OTTA	45 C	1255	1258	10	10.8	5.2		
	8400	BERN	8	1417.3	1418	1.5	37			
	2800	OTTA		1418 E	1418	2 D	9.4			
	2800	OTTA	1 S	1455	1455.5	2	3.2	1.8		
	2800	OTTA	2 S/F	1714	1715	2	4.8	2.6		
	2800	OTTA	1 S	1737	1737.2	1	3.6	1.8		
	2800	OTTA	4 S/F	1740	1741.4	4	66	8.8		
	2695	BOUL	4 SF	1741.5E	1742	1.5D	33	11		
	2800	OTTA	23 GRF	1750	1825	270	18.8	13.2		
	2800	OTTA	4 S/F	1813	1819	8	11.8	5.9		
	2800	OTTA	45 C	1828	1830.2	4	16.4	5.3		
	2800	OTTA	22 GRF	1837	1838.5	11	6.2	3.1		
	2800	OTTA	8 S	1851.1	1851.1	.1	9.4			
	2800	OTTA	40 F	1921	1924	17	33			
	2800	OTTA	1 S	1953	1953.3	1.5	3.6	1.8		
	2695	PENT	4 S/F	2004	2004.5	4	37.6	9.4		
	2800	OTTA	4 S/F	2035.1	2036	2	43	20		
	2695	BOUL	3 S	2036 E	2037	2.5D	16	5		
	2800	OTTA	45 C	2045.5	2046.5	3	22	11		
	2800	OTTA	29 PBI	2048.5	2048.5	5	4.4	2.2		
	2800	OTTA	40 F	2105	2105.9	2	7.4			
	2695	PENT	8 S	2130.9	2130.9	.1	11			
	2695	PENT	3 S	2142.5	2142.8	1	10.2	3.4		
	2695	PENT	4 S/F	2147	2149	6	65	15		
	2695	BOUL	4 SF	2149 E	2150	3 D	61	20		
	2695	PENT	1 S	2155.7	2156	3	8	3		
	2695	PENT	4 S/F	2200.5	2203	6	11	5		
	2695	PENT	240 R	2228	2240	12	5.4	2.7		
	8800	MANI	47 GB	2347	2347.5	7.6	1580.4	526.8		
	2695	MANI	47 GB	2347.2	2347.6	14.3	616.9	205.7		
6	2695	MANI	1 S	0219	0219.1	1	4.3	1.4		

SOLAR RADIO EMISSION
SELECTED FIXED FREQUENCY EVENTS

NOVEMBER 1979

DAY OF MONTH	FREQUENCY	STATION	TYPE	STARTING TIME UT	TIME OF MAXIMUM UT	DURATION MINUTES	FLUX DENSITY 10^{-22}Wm^{-2} Hz^{-1} PEAK	FLUX DENSITY MEAN	INT	REMARKS
	2695	MANI	4 S/F	0229	0230.5	4	48.9	16.3		
	8800	MANI	4 S/F	0229.2	0230.5	3.8	23.1	7.7		
	8800	MANI	3 S	0253.5	0254.6	4.5	18.5	6.2		
	2695	MANI	4 S/F	0253.5	0254.8	4.5	38.3	12.8		
	8800	MANI	3 S	0315	0316.5	5	18.5	6.2		
	2695	MANI	4 S/F	0318	0318.9	2	23.4	7.8		
	8800	MANI	47 GB	0506	0518.2	29.4	877.8	292.6		
	2695	MANI	4 S/F	0506	0526.3	28.8	170.4	56.8		
	8800	MANI	3 S	0555	0555.4	2	13.9	4.6		
	2695	MANI	1 S	0555	0556.2	2.3	8.5	2.8		
	8800	MANI	1 S	0759.5	0759.8	1.3	9.2	3.1		
	2695	MANI	3 S	0759.5	0759.8	1.3	25.6	8.5		
	8400	BERN	8	0825	0828.1	13	93			
	2695	MANI	4 S/F	0825.6	0827.8	7.4	61.8	20.6		
	8800	MANI	4 S/F	0826	0829.5	7	175.6	58.5		
	8800	MANI	3 S	0838.1	0838.3	.5	73.9	24.6		
	2695	MANI	3 S	0838.1	0838.3	.5	46.9	15.6		
	8400	BERN	4	0838.2	0838.4	2	93			
	8400	BERN	46	0853.4	0938 U	135	160 D			
	8400	BERN	27	1215	1245.9	50	40			
	8400	BERN	27	1306	1318.6	30	20			
	2800	OTTA	2 S/F	1316.5	1318.8	4.5	8.8	4.4		
	2800	OTTA	1 S	1336	1337	2	3.8	1.9		
	8400	BERN	1	1347	1348	2.5	20			
	2800	OTTA	8 S	1348	1448.1	.4	6.6	3.3		
	8400	BERN	27	1400	1416.2	41	62			
	2800	OTTA	240AR	1400	1435	35	6.8			
	2800	OTTA	20 GRF	1418 E	1420	15 D	8.2			
	8400	BERN	46	1445	1450 U	21	170 D			
	2800	OTTA	28 PRE	1445	1446.5	3.5	16.4	8		
	2800	OTTA	45 C	1448.5	1450	5.5	268	77		
	2695	BOUL	4 SF	1449 E	1450.5	5.5D	222	74		
	2800	OTTA	29 PBI	1454	1454	12	14.2	4.8		
	8400	BERN	4	1506	1511.6	13	51			
	2800	OTTA	45 C	1510.8	1511.7	5	22	7.4		
	2800	OTTA	21 GRF	1555	1645	95	10.8	5		
	2800	OTTA	3 S	1633	1633.7	1.5	11	3.8		
	2800	OTTA	240 R	1745	1900	75	10.8	5.4		
	2695	PENT	1 S	2011.5	2013	3	3.2	1.6		
	2800	OTTA	1 S	2049	2049.7	1	3.6	2		
	2695	PENT	23 GRF	2055	2105	65	4.6	3.8		
	2695	PENT	1 S	2140.2	2141.4	2	7.8	3.6		
	2695	PENT	4 S/F	2226	2228	6	37.6	14.2		
	2695	PENT	45 C	2233	2235.4	7	16	8		
	8800	MANI	4 S/F	2321.1	2322.3	5.9	23.4	7.8		
	2695	MANI	1 S	2321.1	2323.4	5.9	7.2	2.4		
7	8800	MANI	4 S/F	0101.4	0102.9	7.1	73.5	24.5		
	8800	MANI	4 S/F	0345.3	0346	1.9	52.2	17.4		
	8800	MANI	3 S	0504.8	0506.9	3.4	75	25		
	8800	MANI	3 S	0519.7	0520	1.8	16.3	5.4		
	8800	MANI	3 S	0608.4	0608.7	.6	32.6	10.9		
	8400	BERN	3	1133.3	1134.9	4	23			
	2800	OTTA	22 GRF	1605	1735	120	5.8	3.8		
	2800	OTTA	240 R	1850	1910	20	3.2	1.6		
	2800	OTTA	1 S	1946	1946.5	1.5	5.4	2.5		
	2800	OTTA	20 GRF	2000	2038	140	14	7.2		
8	2695	MANI	4 S/F	0110	0115.6	15.8	341.9	113.9		
	8800	MANI	4 S/F	0111.5	0115.3	14.3	260.7	86.9		
	2695	MANI	4 S/F	0204.3	0204.5	7.3	56.2	18.7		
	8800	MANI	4 S/F	0204.3	0204.5	12.2	377.6	125.9		
	2695	MANI	2 S/F	0334.1	0334.2	2.9	6.2	2.1		
	8800	MANI	3 S	0334.8	0335.3	2.6	24.5	8.1		
	2695	MANI	4 S/F	0428.3	0429.3	3.7	27	9		
	8800	MANI	4 S/F	0428.8	0432	9.2	64.4	21.4		
	8800	MANI	4 S/F	0452.5	0452.9	2	42.9	14.3		
	8800	MANI	4 S/F	0614.2	0616	2.9	30.7	10.2		
	2695	MANI	4 S/F	0615	0616	2.1	18.7	6.2		
	8800	MANI	4 S/F	0641	0644.2	10.7	39.9	13.3		
	2695	MANI	4 S/F	0641	0641.7	10.7	35.4	11.8		
	8400	BERN	4	0810.2	0811.9	19	208			
	8800	MANI	4 S/F	0810.6	0812	7.6	233.3	77.8		
	2695	MANI	4 S/F	0810.6	0813	7.6	187.2	62.4		
	8400	BERN	3	0914.5	0915.3	4	32			
	8400	BERN	27	1021.8	1022.7	13	22			
	8400	BERN	47	1118.6	1121.8	85	1482			
	2800	OTTA	21 GRF	1300 E		300 D	22.2			
	2800	OTTA	2 S/F	1338	1342	8	8	4		
	2800	OTTA	20 GRF	1804	1815	35	3.6			
	2800	OTTA	27A RF	1900		230	10.6	9		
	2800	OTTA	24 R	1900	1907	7	10.6	5.3		
	2800	OTTA	24P R	1907		183	10.6			
	2800	OTTA	1 S	1926	1928	3	4.2	2.1		
	2800	OTTA	21 GRF	2010	2045	45	6.8	3.4		

SOLAR RADIO EMISSION
SELECTED FIXED FREQUENCY EVENTS
NOVEMBER 1979

DAY OF MONTH	FREQUENCY	STATION	TYPE	STARTING TIME	TIME OF MAXIMUM	DURATION	FLUX DENSITY 10^{-22} Wm^{-2} Hz^{-1}		INT	REMARKS
				UT	UT	MINUTES	PEAK	MEAN		
	2695	PENT	4 S/F	2014	2014.8	2	13	6.4		
	2800	OTTA	8 S	2029.4	2029.7	.4	26			
	2695	PENT	20 GRF	2116	2120	28	11.4	5.6		
	2695	PENT	3 S	2155.5	2156	1	211			
	2695	PENT	26 FAL	2210	2250	40	-10.6	-5.3		
	8800	MANI	47 GB	2329.8	2331.7	21.5	574.6	191.5		
	2695	MANI	4 S/F	2330.1	2332	18.9	267.9	89.3		
9	2695	MANI	3 S	0223.8	0224	1.3	12.6	4.2		
	2695	MANI	4 S/F	0242.1	0248.6	9.1	37.8	12.6		
	8800	MANI	4 S/F	0242.1	0248.6	9.1	34.7	11.6		
	2695	MANI	47 GB	0302	0304.9	23.8	1512.6	504.2		
	8800	MANI	47 GB	0302	0304.9	24.3	4579.2	1526.4		
	8800	MANI	3 S	0546.5	0547.4	12	34.7	11.5		
	2695	MANI	3 S	0547	0547.7	2	21	7		
	8800	MANI	47 GB	0602	0604.2	11	1113.9	371.3		
	2695	MANI	4 S/F	0602.3	0603.8	7	287.7	95.9		
	2695	MANI	3 S	0638.5	0638.7	.8	14.7	4.9		
	8800	MANI	3 S	0638.5	0638.7	.8	31.2	10.4		
	2800	OTTA	23 GRF	1310	1355	115	6.4	3.6		
	2800	OTTA	4 S/F	1352.2	1352.8	1.5	19	4.8		
	2800	OTTA	23 GRF	1510	1645	190	8	4		
	2800	OTTA	8 S	1752.3	1752.5	.5	4.8	2.4		
	2800	OTTA	46F C	1923.3	1927	6.7	22	11		
	2800	OTTA	29 PBI	1930	1930	7	8.2	4.1		
	2800	OTTA	240 R	1950	1954	4	7.4			
	2800	OTTA	240 R	2030	2050	20	12	6		
	2695	PENT	21 GRF	2122	2159	80 D	20			
	2695	PENT	3 S	2124.2	2125	3	28	9.4		
	2695	PENT	45 C	2200.5	2201.5	8	46.8	21		
10	2695	MANI	47 GB	0641	0642.8	33.5	1848.4	616.1		
	8800	MANI	47 GB	0641.5	0642.7	32.8	2741.1	913.7		
	8400	BERN	3	0906.9	0907.5	6	56			
	8400	BERN	46	1157.4	1219	40	140			
	2800	OTTA	240AR	1250	1330	40	41	20.5		
	8400	BERN	20	1308.1	1323.1	60	35			
	2800	OTTA	4 S/F	1314.7	1315.2	5	24	12		
	2800	OTTA	22 GRF	1428	1438	13	5	2.6		
	2800	OTTA	21 GRF	1510	1525	30	5.6	3.2		
	2800	OTTA	3 S	1526	1526.5	4	37.4	10		
	2800	OTTA	20 GRF	1548	1551	20	8.4	2.8		
	2800	OTTA	21 GRF	1520	1640	90	7	4		
	2800	OTTA	4 S/F	1621	1621.6	4	26	6.6		
	2800	OTTA	26A FAL	1805	1910	65	-13.8	-6.9		
	2800	OTTA	3 S	1831	1831.7	5	132	36		
	2695	BOUL	3 S	1831 E	1831.5	1.5D	75	25		
	2800	OTTA	8 S	2025.1	2025.4	.6	10.4	5.2		
	2800	OTTA	21 GRF	2040	2100	35	4.2	2.1		
	2800	OTTA	1 S	2055.9	2056.1	1	5.2	2.6		
	2695	PENT	20 GRF	2128	2134	12	9.4	3.6		
	2695	PENT	20 GRF	2142	2147	18	9.4	4.6		
	2695	MANI	3 S	2327.5	2328.3	2.5	42.7	14.2		
	8800	MANI	3 S	2327.5	2328.1	1.5	30.3	10.1		
11	8400	BERN	4	0859.6	0900.7	2	40			
	8400	BERN	1	0940.6	0941.8	2	25			
	8400	BERN	1	1048.7	1049	1.5	45			
	2800	OTTA	3 S	1254.5	1255	3.5	17.8	6		
	8400	BERN	8	1254.8	1255	3	30			
	2800	OTTA	20 GRF	1301	1307	12	10	5		
	2800	OTTA	8 S	1325	1325.3	.6	12.8	6.4		
	2800	OTTA	20 GRF	1330	1420	140	10.4	5.2		
	2800	OTTA	21 GRF	1600	1700	90	7	3.4		
	2800	OTTA	4 S/F	1609	1612	7	19	9.5		
	2800	OTTA	1 S	1549.7	1650.1	4	5	2.4		
	2800	OTTA	3 S	1758	1758.5	2.5	11.2	4		
	2800	OTTA	260 FAL	1805	1850	40	11	5.5		
	2800	OTTA	8 S	1935.2	1935.3	.8	5	2.5		
	2800	OTTA	3 S	2040	2041.3	3	12.2	3.4		
	2695	PENT	3 S	2131	2132	4	13.8	3.2		
	2695	PENT	1 S	2136.5	2136.7	2	5	2.4		
	2695	PENT	1 S	2139.4	2140	1.5	4	3		
	2695	PENT	3 S	2201.6	2202	1.5	33	11		
	2695	PENT	8 S	2209.4	2209.6	.5	14.2			
12	8800	MANI	4 S/F	0127	0128.6	5	461	153.7		
	2695	MANI	4 S/F	0127.3	0128.6	5.2	241.7	80.6		
	2800	OTTA	1 S	1400	1401	2	3.6	1.6		
	2800	OTTA	8 S	1441.7	1441.9	.7	7.2	3.6		
	2800	OTTA	4 S/F	1936	1945	16	107	48.4		
	2800	OTTA	29 PBI	1952	1952	115	28.4	7.2		
13	2800	OTTA	45 C	1510	1510.5	5	19.2	7		
	2800	OTTA	8 S	1638.9	1638.9	.1	7.2			

SOLAR RADIO EMISSION
SELECTED FIXED FREQUENCY EVENTS
NOVEMBER 1979

DAY OF MONTH	FREQUENCY	STATION	TYPE	STARTING TIME UT	TIME OF MAXIMUM UT	DURATION MINUTES	FLUX DENSITY 10^{-22} Wm^{-2} Hz^{-1} PEAK	FLUX DENSITY MEAN	INT	REMARKS
	2800	OTTA	22 GRF	1720	1734	25	4.2	1.8		
	2800	OTTA	40 F	1814	1822.8	13	7.8			
	2800	OTTA	40 F	1903	1913.5	22.5	14.2			
	2800	OTTA	21 GRF	1935	2000	41	3.6			
	2695	PENT	20 GRF	2300	2002.5	15	10.4			
	2695	PENT	21 GRF	2018	2120	90	4.2	2.4		
	2800	OTTA	1 S	2037.3	2037.7	2	6.2	3		
14	2695	MANI	3 S	0439.6	0440.1	.9	21.2	7.1		
	8400	BERN	3	0930.2	0931.8	2	30			
	8400	BERN	3	1112.6	1112.8	2.5	30			
	2800	OTTA	21 GRF	1325	1400	75	5.8	3.8		
	8400	BERN	27	1330	1331.8	7	40			
	2800	OTTA	3 S	1330	1331.8	4.5	14.2	6.8		
	2800	OTTA	20 GRF	1443	1448	17	6.8	3.6		
	2800	OTTA	20 GRF	1540	1610	60	3.4	1.7		
	2800	OTTA	4 S/F	2023	2025	22	107	41		
	2695	BOUL	3 S	2024 E	2027	6.5D	81	27		
	2800	OTTA	29 PBI	2045	2045	65	13.2	6		
	2695	MANI	4 S/F	2226.4	2227.5	2.4	24.6	8.2		
	8800	MANI	4 S/F	2226.5	2227.8	2.3	71.7	23.9		
15	8800	MANI	2 S/F	0532.3	0532.6	1.7	11.1	3.7		
	2695	MANI	3 S	0532.3	0532.6	1.7	25.1	8.4		
	2695	MANI	2 S/F	0752.7	0753.7	1.8	4.2	1.4		
	2800	OTTA	20 GRF	1353		97	7.2	3.6		
	2800	OTTA	8 S	1538.5	1538.5	.2	7.8			
	2800	OTTA	8 S	1547	1547.2	.3	4.2	2		
	2800	OTTA	22 GRF	1640	1652	200	18.2	7		
	2800	OTTA	4 S/F	2021.2	2025	6.8	167	40		
	2695	BOUL	4 SF	2022 E	2025	5 D	132	44		
	2800	OTTA	30 PBI	2028	2028	35	14.4	7		
	2800	OTTA	45 C	2030.8	2031.7	5	9.4	8		
	2695	PENT	21 GRF	2115		95 D	28			
	2695	PENT	8 S	2138.4	2138.4	.1	31			
	2695	PENT	47 GB	2139	2151.8	31	920	281		
	2695	PENT	4 S/F	2222	2225	4	12.6	5		
16	2800	OTTA	20 GRF	1453	1454	35	3.6	1.8		
	2800	OTTA	260 FAL	1740	1830	50	-5.2	-2.6		
	2800	OTTA	1 S	1941	1841.4	1	2.4	1.2		
	2800	OTTA	4 S/F	1857	1857.2	1	32	16		
	2695	PENT	20 GRF	2015	2150	140 D	13			
17	2800	OTTA	240 R	1820	1850	30	4.6	2.3		
18	2800	OTTA	1 S	1321	1322	2	7.2	3.5		
	2800	OTTA	1 S	1356	1356.1	2	4.8	2.4		
	2800	OTTA	21 GRF	1620	1637	55	6	3		
	2800	OTTA	1 S	1622	1622.5	1	2.8	1.8		
	2800	OTTA	22 GRF	1850	1940	70	4.6			
19	8400	BERN	20	1146.5	1301.3	135	41			
	2800	OTTA	3 S	1254 E	1304	26	46			
	2800	OTTA	30 PBI	1320	1320	220	15.4	7.2		
	2800	OTTA	20 GRF	1527	1532	45	9.6	3.2		
	2800	OTTA	20 GRF	1829	1830	25	3.4	1.7		
	2800	OTTA	20 GRF	1905	1930	70	2.8	1.4		
	2695	PENT	20 GRF	2020	2100	90	4.8	3		
20	2695	MANI	3 S	0608.8	0609.3	3.5	32.6	10.8		
	2800	OTTA	21 GRF	1440	1517	80	7	3.8		
	2800	OTTA	1 S	1506	1506.5	1	2.4	1.2		
	2800	OTTA	20 GRF	1700	1805	115	8	3.8		
	2800	OTTA	1 S	1958	1959.2	3	2.6	1		
	2695	PENT	260 FAL	2005	2100	55	7.8	3.9		
21	2695	MANI	4 S/F	0650.9	0654.5	9.4	79.9	26.6		
	8800	MANI	4 S/F	0653.8	0654.7	4.4	84.4	28.1		
	2800	OTTA	20 GRF	1350	1430	125	4.2	2.4		
	2800	OTTA	20 GRF	1505	1607	45	2.4	1.2		
23	2800	OTTA	20 GRF	1335	1420	140	5.6	2.8		
	2800	OTTA	260 FAL	1720	1750	30	-3.8	-2		
24	2695	MANI	3 S	0258.1	0259.4	6.5	11.4	3.8		
	8800	MANI	4 S/F	0259	0259.3	4.7	51	17		
	2800	OTTA	20 GRF	1550	1650	120	3.8	2		
	2800	OTTA	260 FAL	1800	1835	35	-3.4	-1.7		
25	2800	OTTA	20 GRF	1350	1425	75	3.4			
	2800	OTTA	22 GRF	1525		165	3.4			
29	2695	PENT	21 GRF	2040	2120	60 D	4.2			
	2800	OTTA	2 S/F	2051	2052.5	3	6.6	3.3		

SOLAR RADIO EMISSION
SELECTED FIXED FREQUENCY EVENTS

NOVEMBER 1979

DAY OF MONTH	FREQUENCY	STATION	TYPE	STARTING TIME	TIME OF MAXIMUM	DURATION	FLUX DENSITY 10^{-22} Wm^{-2} Hz^{-1}		INT	REMARKS
				UT	UT	MINUTES	PEAK	MEAN		
30	2800	OTTA	20 GRF	1735	1815	85	2.2	1.1		

Observatories:

BERN = Berne BOUL = Boulder MANI = Manila OTTA = Ottawa ARO PENT = Penticton SGMR = Sagamore Hill

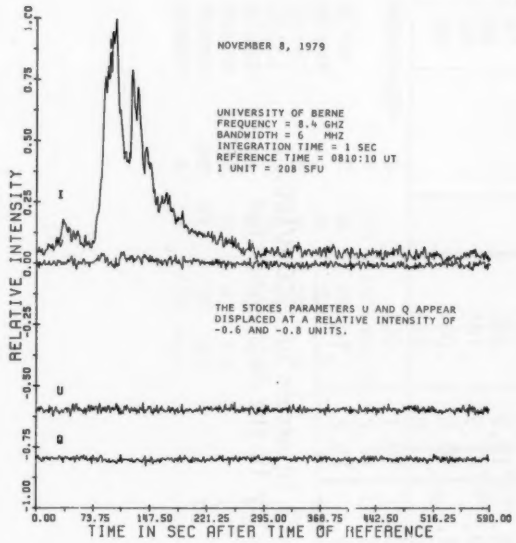
Explanation of Type Code:

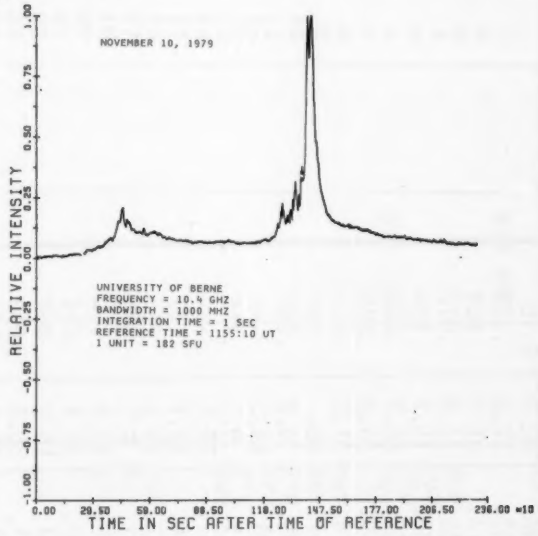
1 Simple 1	6 Minor	22 Simple 3F	27 Rise and Fall	32 Absorption	44 Noise Storm in Progress
2 Simple 1F	7 Minor +	23 Simple 3AF	28 Precursor	40 Fluctuation	45 Complex
3 Simple 2	8 Spike	24 Rise	29 Post Burst Increase	41 Group of Bursts	46 Complex F
4 Simple 2F	20 Simple 3	25 Rise A	30 Post Burst Increase A	42 Series of Bursts	47 Great Burst
5 Simple	21 Simple 3A	26 Fall	31 Post Burst Decrease	43 Onset of Noise Storm	48 Major
					49 Major +

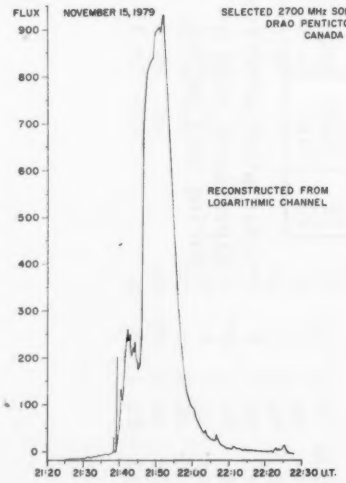
NOTE: U.S. Air Weather Service RSTN data still not available at this time. Some computer problems are still being worked on at NGSDC. Because the problems are relatively minor, we are hopeful that they will be solved shortly. We ask for your patience in the interim.

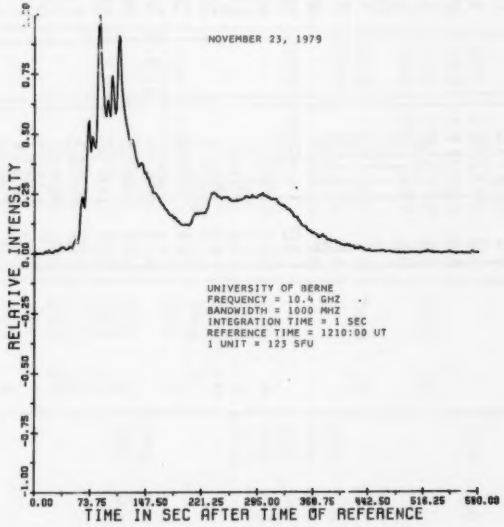
SELECTED SOLAR NOISE BURSTS

NOVEMBER 1979









PIONEER XII

NOVEMBER 1979

DATE Nov '79	TIME (UT)	ESV (°)	U_{H+} (Km/sec)	N_{H+} (H^+/CC)	T_{H^+} ($\times 10^6$°K)
1	1220	137.8	358.	32.3	0.10
2	1115		453.	22.6	.323
3	1248		473.	48.2	.053
4	1211		458.	26.4	.012
5	1358		385.	15.7	.105
6	1154		340.	28.2	.026
7	1101		399.	14.5	.075
8	1124		373.	21.8	----
9	1236		367.	15.	.157
10	1253		359.	9.2	.054
11	1211		404.	44.3	---
12	1631		415.	9.7	.116
13	1517		361.	17.1	---
14	1256		386.	18.7	;157
15	0200	129.6	392.	14.4	.26
16	1602		391.	6.1	.075
17	0736		325.	17.9	---
18	1143		435.	37.1	.016
19	1736		384.	16.2	.062
20	1314		331.	26.8	.039
21	0808		337.	21.6	.133
22	1431		295.	23.8	.057
23	2215		333.	49.7	.053
24	1249		324.	13.9	.043
25	1307		440.	27.5	.149
26	1729		364.	18.8	.047
27	1030		362.	23.8	.093
28	0304		340.	18.1	.051
29	1604		359.	17.2	.179
30	1813		389.	15.2	.102

*Solar wind velocities were in excess of 1200KM/SEC. Experienced some difficulty in the data reduction during this period.

SOLAR WIND

Interplanetary Scintillations

NOVEMBER 1979

DAY	3C48 VEL	ERR	3C144 VEL	ERR	3C147 VEL	ERR	3C161 VEL	ERR	3C237 VEL	ERR	3C273 VEL	ERR	3C298 VEL	ERR	3C459 VEL	ERR
1			628	205							342	7				
2									204	15	298	16			378	56
3							260	58	342	44	320	14				
4							307	18	365	89	258	4	409	30		
5							290	12	322	45	249	12				
6			279	36			324	85								
7									367	5	262	3	383	63		
8							367	7	397	6	336	16			388	8
9							347	-82			404	-75			356	99
10							390	-81	398	-84					457	99
11							273	6			353	10	325	9	590	83
12							394	99			485	15	306	6	443	6
13							339	9			389	11	350	10		
14											384	12	396	31		
15									320	13	310	4	303	7		
16							382	10			328	4			393	14
17							360	9			403	5	360	5	382	33
18							291	25			410	12	355	10		
20											621	161	703	18		
21											431	26	352	59		
22							489	81			310	8	341	17		
23											407	47	300	3		
24									389	25	329	3	359	4		
25							385	47	296	43	345	13	358	5	382	32
26									294	8	362	5	401	5	371	5
27							479	34	378	7	367	5	385	6		
28							438	51			504	12				
29													391	97		
30							396	3	397	5	377	15	397	34		

NOVEMBER 5				15				25			
	UT	LAT	DIST	DLON	UT	LAT	DIST	DLON	UT	LAT	DIST	DLON
3C48	7.	8.	1.28	-1.	6.	8.	1.27	-3.	6.	7.	1.26	-5.
3C144	11.	2.	1.24	9.	10.	1.	1.27	7.	10.	0.	1.29	5.
3C147	10.	9.	1.22	9.	9.	8.	1.24	8.	9.	6.	1.26	6.
3C161	12.	-4.	1.18	10.	12.	-5.	1.21	8.	11.	-6.	1.23	6.
3C237	16.	0.	0.95	17.	15.	0.	1.00	17.	15.	-1.	1.06	16.
3C273	18.	3.	0.61	53.	17.	1.	0.74	42.	17.	0.	0.84	32.
3C298	20.	47.	0.39	59.	19.	31.	0.50	56.	18.	20.	0.62	50.
3C459	4.	6.	1.21	-11.	4.	6.	1.17	-13.	3.	5.	1.13	-14.

INFERRED IP MAGNETIC FIELD

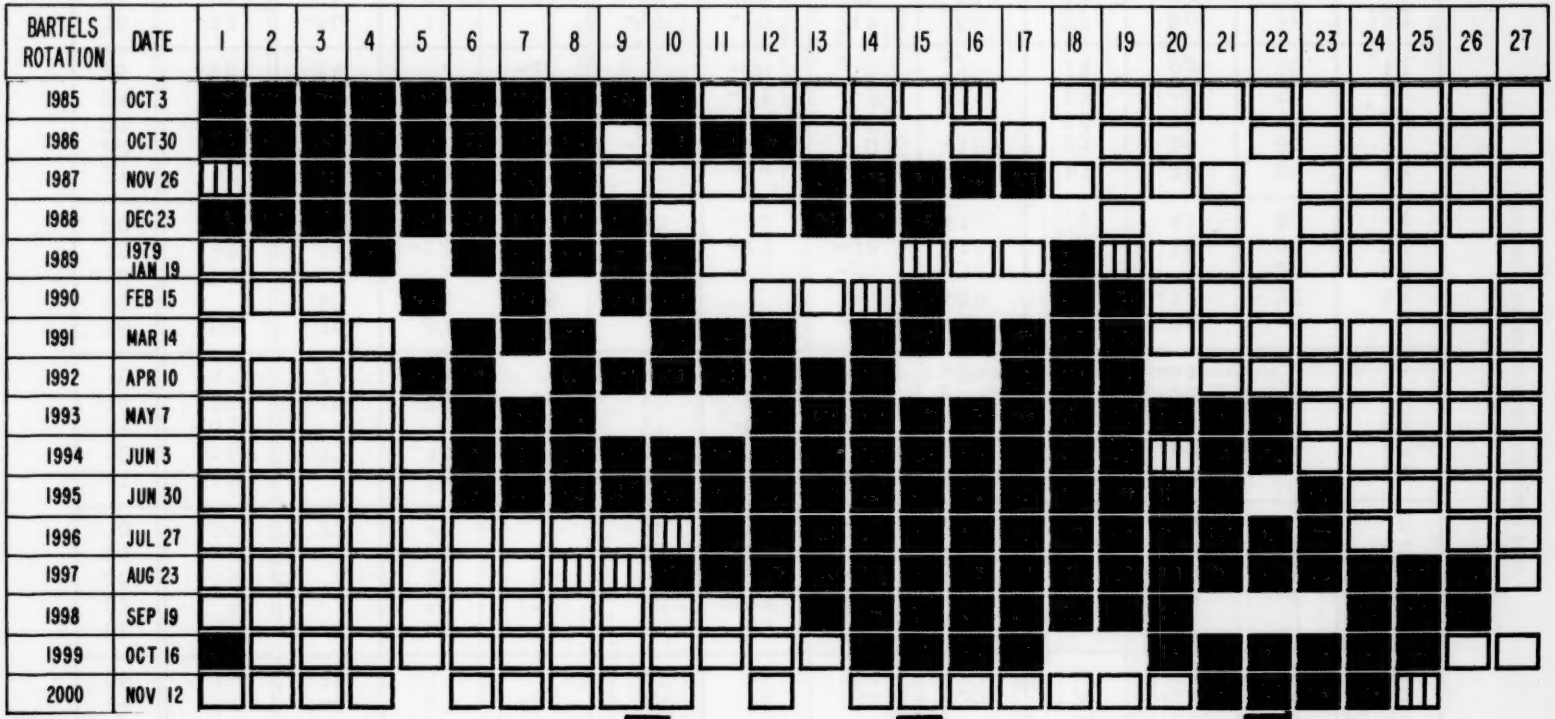
BARTELS ROTATION	DATE	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27
1983	AUG 15					TA			AT		AT AT			AT	TA						A*						TA	
1984	SEP 11			TA		AT				TA	T*						A*			—						A*	TA –	
1985	OCT 8	*	TA		T*		AT				—	—	—						TA	TA	—	AT						
1986	NOV 4			–			–	AT –		–	–	–						*	AT		–	AT	AT	AT	AT			
1987	DEC 1	AT	AT		–					–	–	TA	–	–	AT –	–	AT –	TA –	–	A*	–			*		–	AT –	–	
1988	DEC 28		–	–	–	–				–	AT *		TA	TA	T*	–	AT –	–	TA			–	TA –				–	TA	–
1989	1979 JAN 24		–			*		TA				TA	TA							*					–		AT	
1990	FEB 20		TA		–	TA –	TA			–	TA –	TA	TA			TA	A*	TA	A*	TA	A*							TA	A*
1991	MAR 19			AT		AT		T*						*	–	–	–	–	TA –		AT		T*	TA	TA	–	A*	–		TA	A*
1992	APR 15		A*	TA	T*	AT		TA	TA		T*						TA	*	–	–	AT –	TA					A*		–	TA	
1993	MAY 12									–	–		AT			*		TA			AT	AT						– –	– –	
1994	JUN 8	TA	TA	A*		TA					–	AT		–						T* –	TA		TA	T*			AT	T*	–	TA	
1995	JUL 5	TA	TA		AT		TA		AT	A*	TA		TA –			AT					*				TA	T*				TA
1996	AUG 1				AT		A*	–		TA	–	–	–		T*			*	–			AT					AT	*			
1997	AUG 28			–		A*						AT							–		–		T*	–	AT	TA	–		TA	AT		
1998	SEP 24						A*		AT	–			TA		A*	*			TA		–			TA				TA	TA –		*
1999	OCT 21								T*			TA	–			–				AT	AT *			AT							
2000	NOV 17	–	TA –			AT					*				AT															

▓ = definitely towards the sun □ = definitely away from the sun

T = towards the sun A = away from the sun * = effect doubtful or not discernible - = missing data

The table shows daily inferences of the polarity of the interplanetary magnetic field. The first half of the day is based principally on magnetograms produced by the magnetometer at the Vostok Antarctic Station of the USSR. The magnetometer of the U.S. Air Weather Service now operated at Thule by the Danish Meteorological Institute is used for the second half of the day.

STANFORD MEAN SOLAR MAGNETIC FIELD



POLARITY OF THE MEAN SOLAR MAGNETIC FIELD: □ = FIELD >2μT, ▥ = -2μT ≤FIELD ≤2μT, ■ = FIELD <-2μT

No box visible indicates no data available for that day.

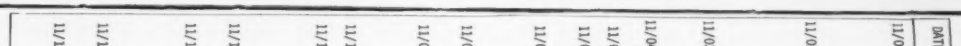
Note: Data are taken daily at 2000 UT. Dates given are not Bartels Rotation dates. These earlier dates correspond to the occurrence of phenomena on the sun which affect the Earth during the given Bartels Rotation.

STANFORD MEAN SOLAR MAGNETIC FIELD (MICROTESLA)

1978 1979

	DEC.	JAN.	FEB.	MARCH	APRIL	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	NOV.
DAY												
01	-72	11	.	-36	-4	26	41	97	24	-5	-32	-6
02	-39	.	-1	.	16	13	82	86	21	-8	-27	.
03	-7	15	30	.	57	6	137	70	6	-36	-27	.
04	17	-6	27	-24	44	10	115	35	4	-28	-36	-5
05	19	-25	-13	-6	11	45	104	-33	2	-20	-45	-8
06	9	-26	1	46	9	68	78	-61	-6	-24	-31	-17
07	5	.	50	64	14	101	15	-81	-8	-39	-22	-12
08	-15	.	88	56	67	134	-27	-80	-8	-46	-45	-3
09	-26	.	59	.	102	126	-50	-70	-6	-54	.	-6
10	-37	27	39	.	124	75	-76	-68	-16	-45	.	6
11	-19	.	40	21	138	31	-82	-75	-43	-47	.	29
12	-16	27	30	63	100	-13	-52	-23	-59	-67	-55	46
13	13	.	.	100	51	-66	-52	-23	-46	-74	-62	52
14	31	45	78	106	-12	-104	-37	-20	-33	-53	-49	45
15	43	21	62	.	-51	.	-28	-24	-38	-41	.	26
16	65	36	27	24	.	.	-42	-30	-61	-26	-6	.
17	.	48	6	45	-121	.	-43	-26	-57	-18	20	13
18	59	59	.	.	-117	-27	-35	-32	-41	3	29	41
19	30	37	-52	-56	-72	-29	-32	-16	4	15	25	35
20	18	18	.	-81	-40	-36	-37	-10	.	41	52	35
21	32	9	-86	-81	-27	-34	-24	.	41	46	64	30
22	27	-15	.	.	-32	-43	0	-16	55	64	69	.
23	-3	.	-80	-51	-40	-56	-7	6	58	59	48	22
24	-20	-54	-52	-41	.	-51	-7	33	68	65	50	.
25	-26	-64	.	-28	.	-30	10	58	74	63	35	12
26	-32	-70	19	.	-99	-16	17	69	77	40	26	20
27	-63	-64	10	-29	-92	-17	29	83	47	37	16	27
28	-51	-27	0	-36	-57	-4	47	92	40	24	3	24
29	-36	12		-12	.	19	64	90	32	21	-9	39
30	-22	.		-26	3	10	93	82	1	7	-7	37
31	-21	.		-28		9		53	-1		-22	

DOT SYMBOL ENTRY INDICATES NO DATA AVAILABLE FOR THE DAY.



BOULDER GEOMAGNETIC SUBSTORM LOG

NOVEMBER 1979

DATE	ONSET TIME	DIRECTION	COMMENTS
11/01			Field unsettled throughout the day.
	1205	West	
	1545		
	1725		
11/02	0355	East	
	0520	East	
	0810	West	
	0915	West	
	1005	West	
	1310	West	
11/03	1125	West	Moderate SS
	1515		Slow onset; developed into moderate SS.
11/04	1110	West	
11/05			Quiet day
11/06	1025		Weak SS
	1130		Weak SS
11/07	1005	West	
	1340		
	1550		
	1835		
11/08	0800	West	Moderate SS
	1055	West	Moderate SS
11/09	1300		
	1410		Moderate SS with several particle injections; final recovery 1830 UT.
11/10			Quiet day
11/11			Positive impulse on H component at mid- and low-latitude stations. Field slightly unsettled remainder of day.
11/12	0755	≈ center	
	1135	West	
11/13			Gradual onset near 0200 UT; magstorm developed. Storm conditions persisted with gradual abatement near 14/0700 UT.
11/14			Field quiet after gradual abatement of magstorm.
11/15			Quiet day
11/16	0100		Small positive impulse on H component at all mid- and low-latitude stations. Field unsettled through 1900 UT; no distinctive SS activity.
11/17	0525	East	Weak SS
	0840	West	
11/18	0208		Positive impulse on H component at all mid- and low-latitude stations. No significant magnetic activity followed.
	1045	West	Weak SS
11/19			Field unsettled 0600-1630 UT; no distinctive SS activity.
11/20	1005	West	
	1055	West	Field remained unsettled through 1740 UT.
11/21	0655	≈ center	1st of double onset.
	0725	West	2nd of double onset.
11/22	0825	West	Weak SS
	1010	West	Weak SS
11/23			Quiet day
11/24	0210		Gradual onset to active field; magstorm level of activity 1000-2000 UT.
11/25			Field remained active through 0600 UT.
11/26			Quiet day
11/27	0615	East	Weak SS
	0715	West	Weak SS
	1300	West	Weak SS
11/28	0650	≈ center	Weak SS
11/29	1640		Small positive impulse on H component all mid- and low-latitude stations. Impulse also occurred on satellite magnetometer.
11/30	0739		Strong positive impulse on H component at all mid- and low-latitude stations. Auroral stations responded simultaneously with moderate SS. Field remained unsettled through 1600 UT.

DOT SYMBOL ENTRY INDICATES NO DATA AVAILABLE FOR THE DAY.

SGD 424 Part I (Prompt)

OCTOBER 1979 DATA

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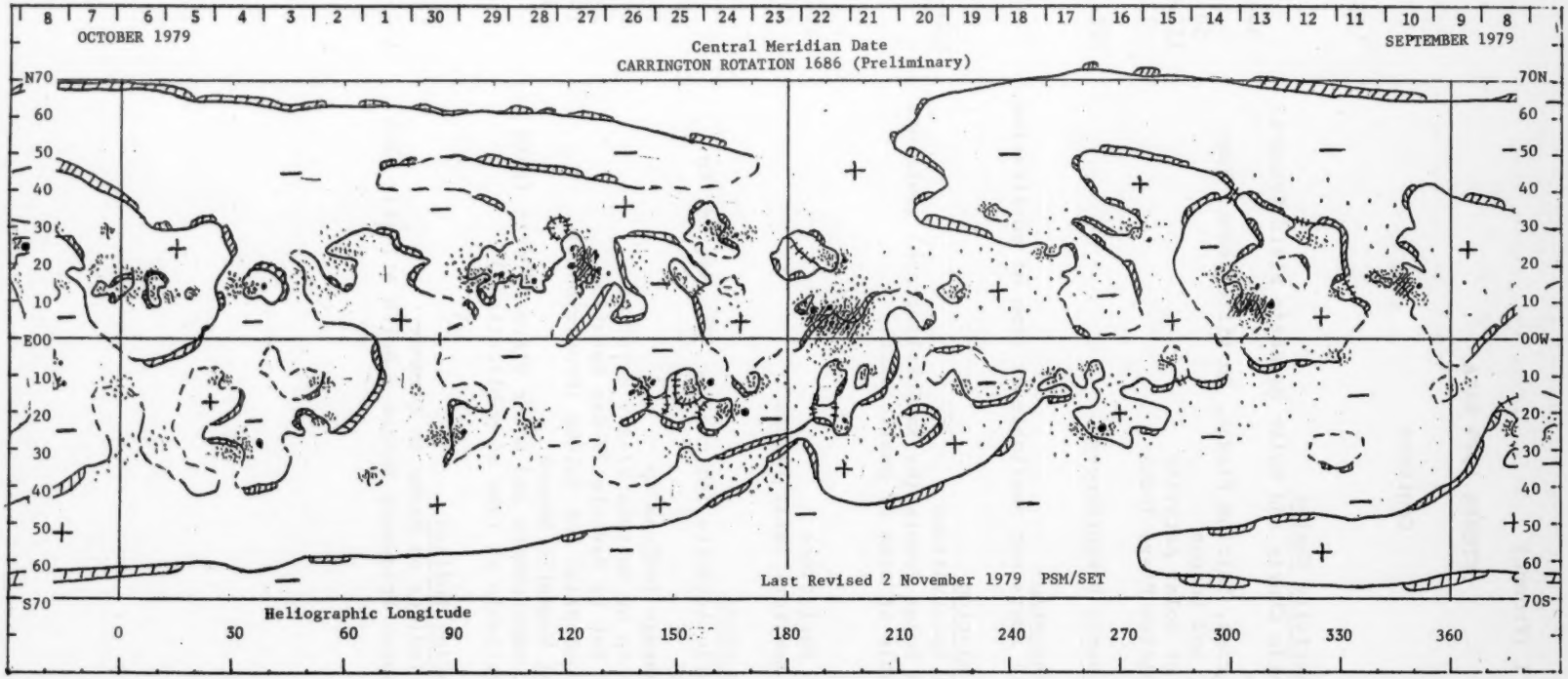
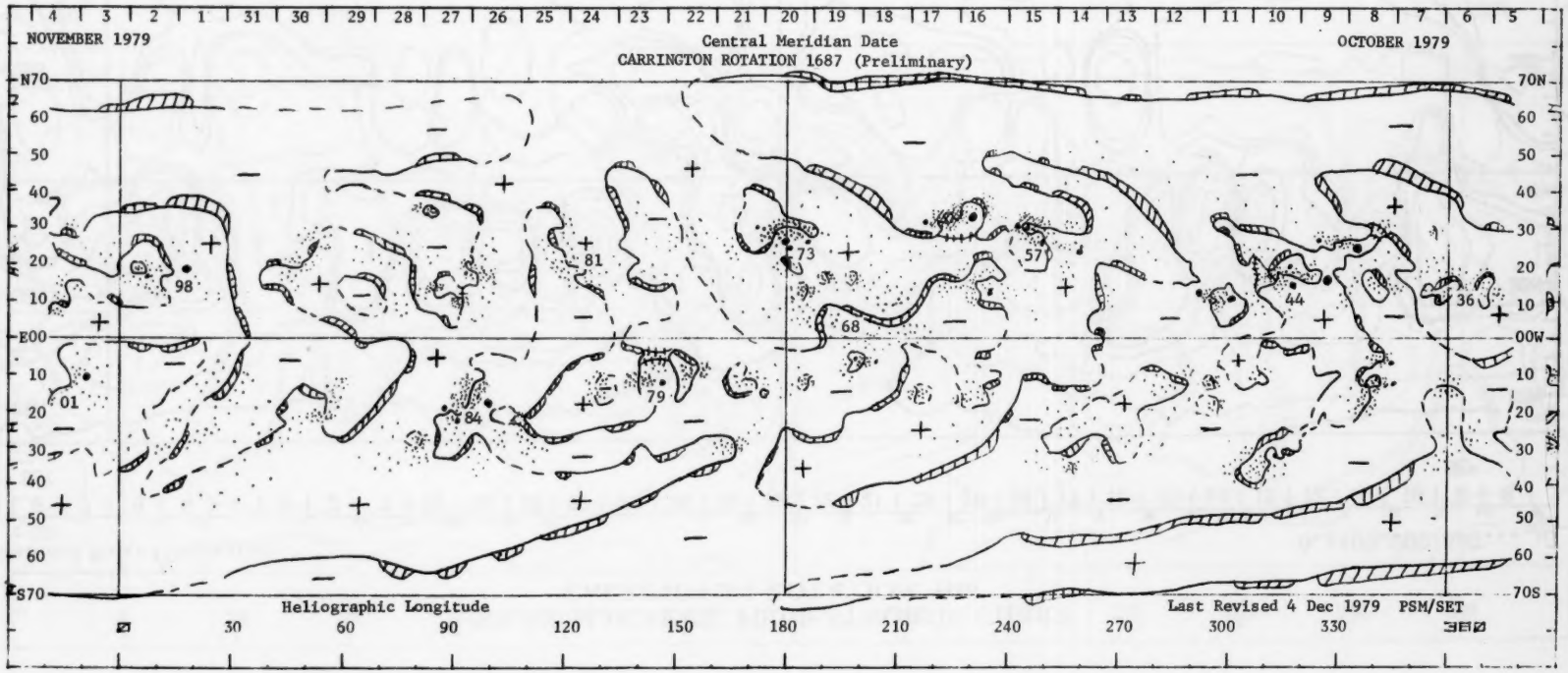
Hα SYNOPTIC CHART

CARRINGTON ROTATION 1686 (PRELIMINARY)



Hα SYNOPTIC CHART

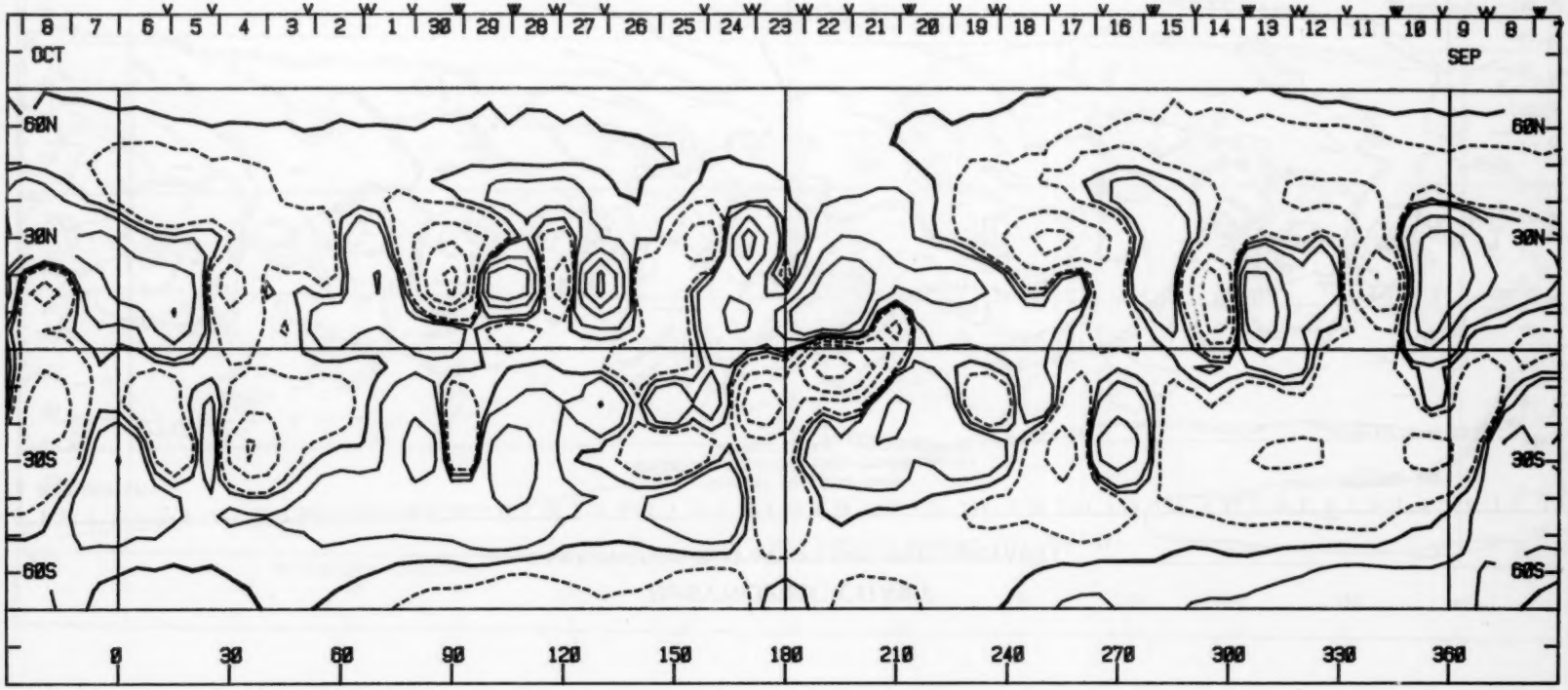
CARRINGTON ROTATION 1687 (PRELIMINARY)



SOLAR MAGNETIC FIELD SYNOPTIC CHART
CARRINGTON ROTATION 1686

Stanford Solar Observatory

0,±100,200,500... μT

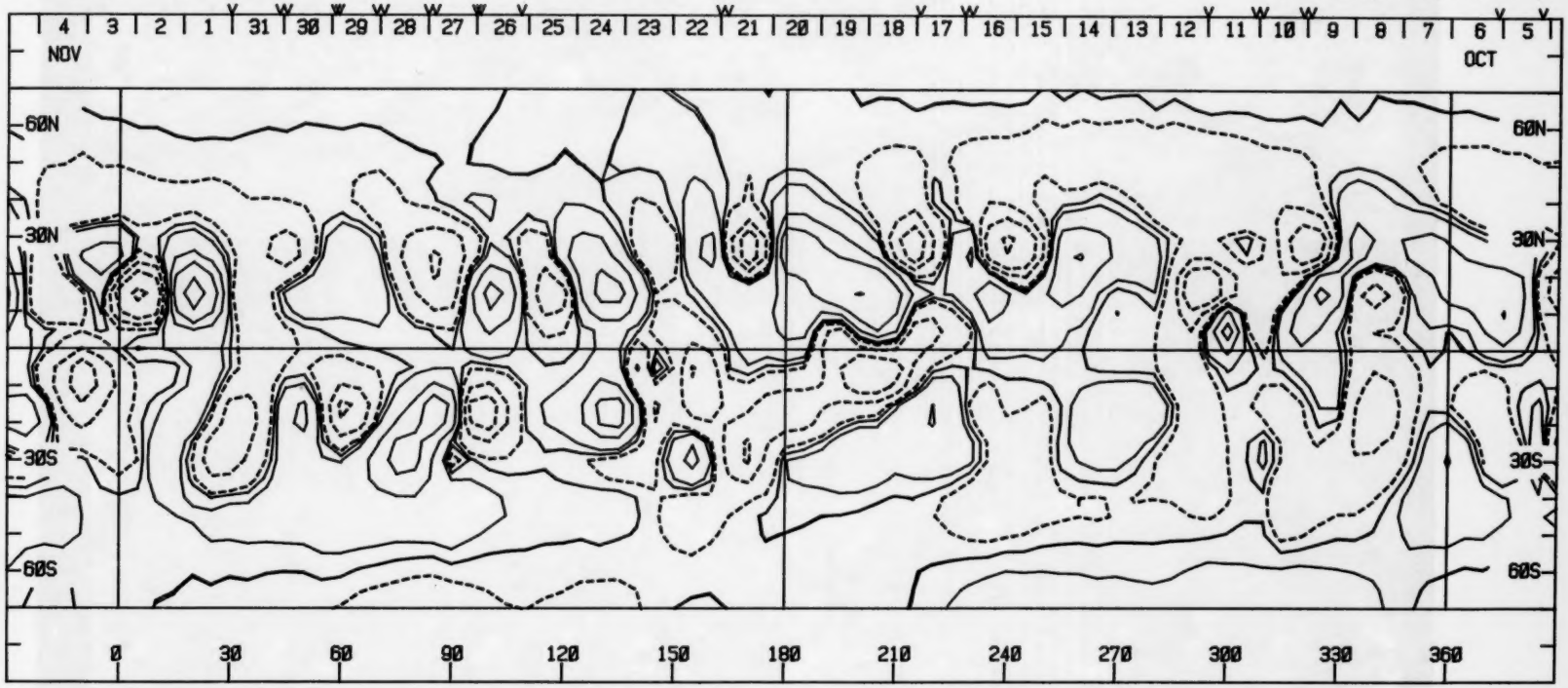


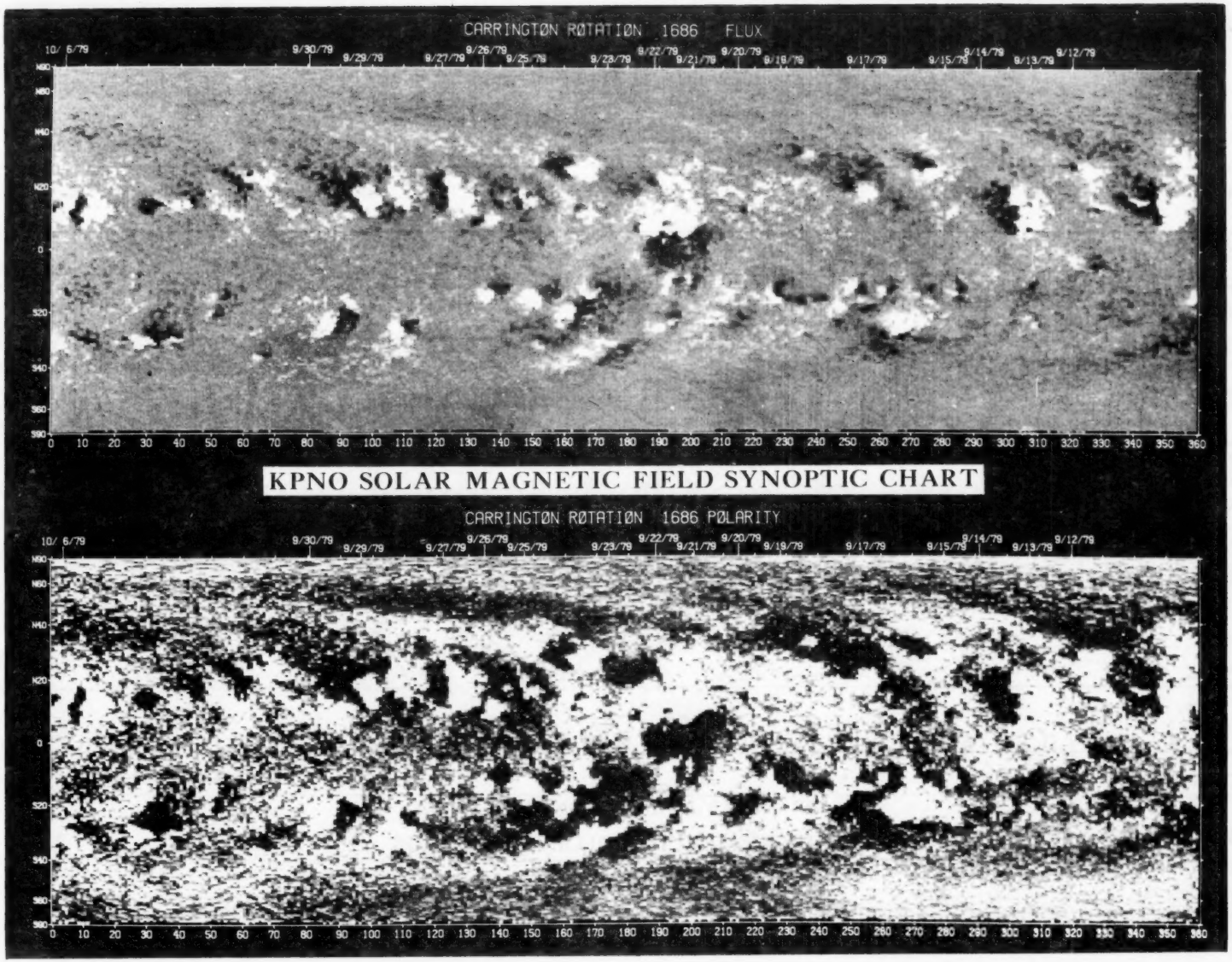
SOLAR MAGNETIC FIELD SYNOPTIC CHART

CARRINGTON ROTATION 1687

Stanford Solar Observatory

0,±100,200,500... μT




CARRINGTØN RØTATIØN 1686 FLUX
10/ 6/79
9/30/79
9/29/79
9/27/79
9/26/79
9/25/79
9/23/79
9/22/79
9/21/79
9/20/79
9/19/79
9/17/79
9/15/79
9/14/79
9/13/79
9/12/79
0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150 160 170 180 190 200 210 220 230 240 250 260 270 280 290 300 310 320 330 340 350 360
KPNO SOLAR MAGNETIC FIELD SYNOPTIC CHART
CARRINGTØN RØTATIØN 1686 PØLARITY
10/ 6/79
9/30/79
9/29/79
9/27/79
9/26/79
9/25/79
9/23/79
9/22/79
9/21/79
9/20/79
9/19/79
9/17/79
9/15/79
9/14/79
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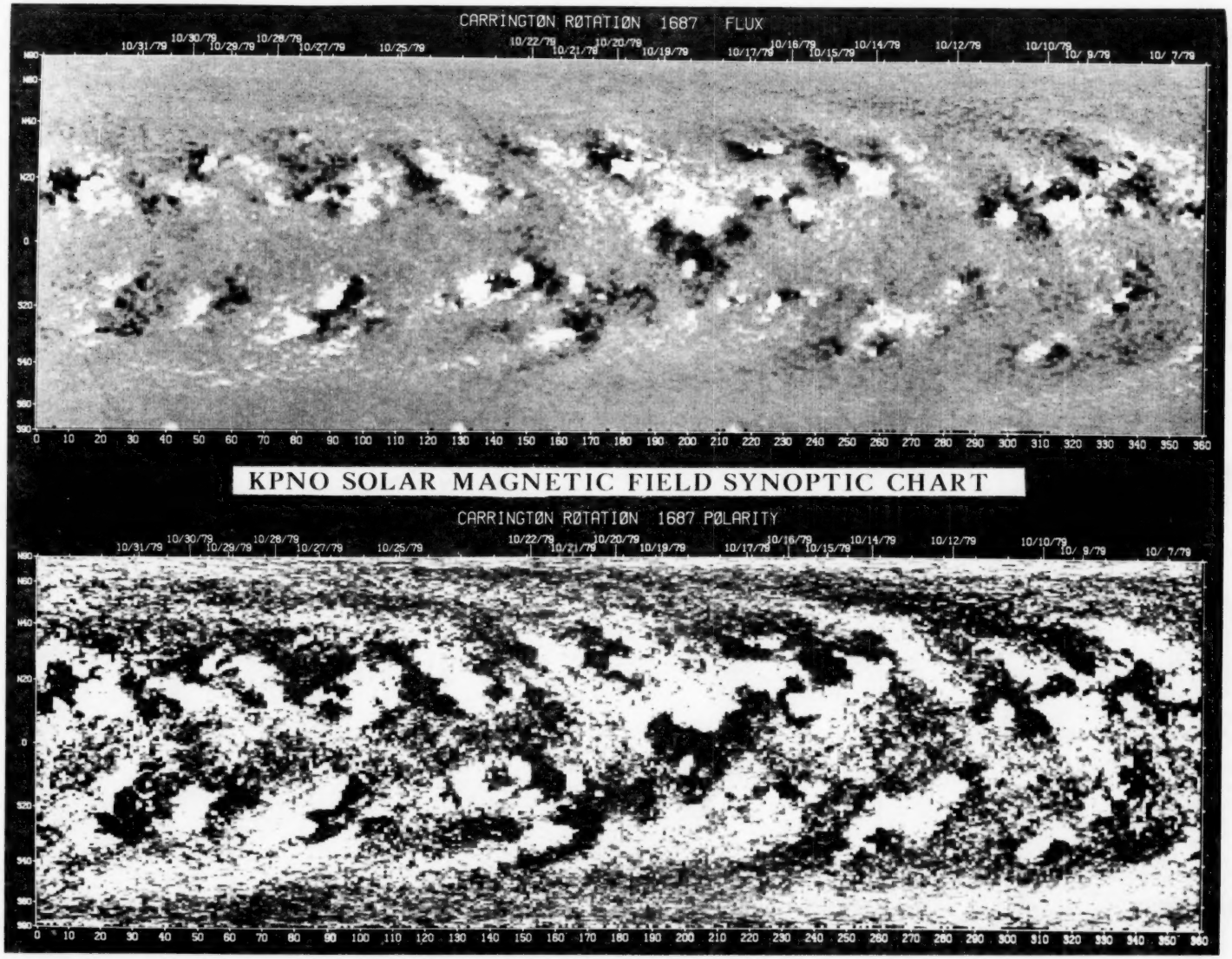

CARRINGTØN RØTATIØN 1687 FLUX
10/31/79 10/30/79 10/29/79 10/28/79 10/27/79 10/25/79 10/22/79 10/21/79 10/20/79 10/19/79 10/17/79 10/16/79 10/15/79 10/14/79 10/12/79 10/10/79 10/ 9/79 10/ 7/79
N80 N40 N20 0 S20 S40 S60 S80
0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150 160 170 180 190 200 210 220 230 240 250 260 270 280 290 300 310 320 330 340 350 360
KPNO SOLAR MAGNETIC FIELD SYNOPTIC CHART
CARRINGTØN RØTATIØN 1687 PØLARITY
10/31/79 10/30/79 10/29/79 10/28/79 10/27/79 10/25/79 10/22/79 10/21/79 10/20/79 10/19/79 10/17/79 10/16/79 10/15/79 10/14/79 10/12/79 10/10/79 10/ 9/79 10/ 7/79
N80 N60 N40 N20 0 S20 S40 S60 S80
0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150 160 170 180 190 200 210 220 230 240 250 260 270 280 290 300 310 320 330 340 350 360

OCTOBER 1, 1979 (P = 25.97, B_o = 6.73, L_o = 78.00)

SACRAMENTO PEAK Np CORONA (1.15 $R_\odot$)
5303 Å

E NO DATA W

Sp

KITT PEAK Np MAGNETOGRAM
Bright - Plus
Dark - Minus

E NO DATA W

Sp

MT. WILSON Np MAGNETOGRAM
Solid-Plus
Dotted-Minus

DELTAY = 12.7
DELTAX = 9.5

E W

Levels
5
10
20
40
80

17.29 - 19.05 UT

Sp

Sp

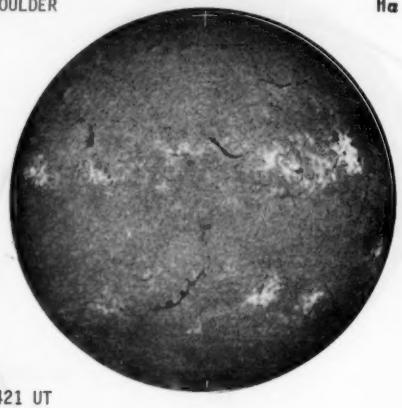
17.29 - 19.05 UT

Sp

O1

BOULDER

Np



E W

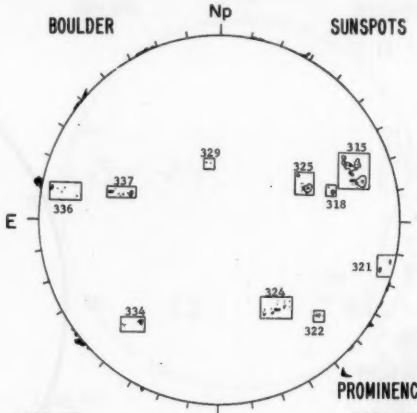
1421 UT

Sp

Hα

BOULDER

Np



E W

1440 UT

Sp

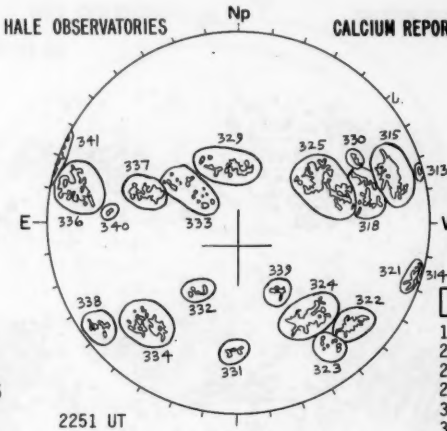
SUNSPOTS

PROMINENCES

1421 UT

HALE OBSERVATORIES

Np



E W

2251 UT

Sp

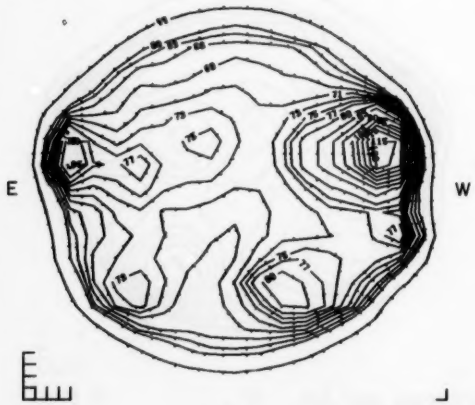
CALCIUM REPORT

GOOD	
15- 5000-3.5	
22- 1800-3.0	
24- 2600-3.0	
25- 3700-3.0	
34- 2300-2.5	
36- 4300-3.0	
37- 1200-3.0	

NOSC LA POSTA

Np

2.0 CM



E W

1653 UT

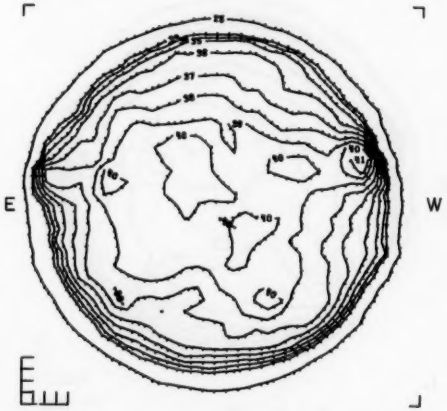
Sp

Ant. Temp. Unit 100° K

NOSC LA POSTA

Np

8.6 MM



E W

1555 UT

Sp

Ant. Temp. Unit 100° K

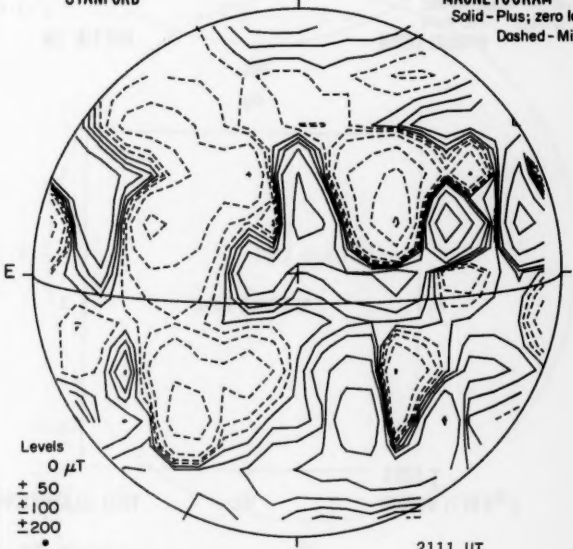
STANFORD

Np

MAGNETOGRAM

Solid - Plus; zero level

Dashed - Minus



E W

Levels

0 μT

± 50

±100

±200

2111 UT

Sp

51

Oct 79

OCTOBER 2, 1979 (P = 26.04, B_o = 6.68, L_o = 64.80)

SACRAMENTO PEAK Np CORONA (1.15 $R_\odot$)
5303 Å

E NO DATA W

Sp

KITT PEAK Np MAGNETOGRAM
Bright - Plus
Dark - Minus

E NO DATA W

Sp

MT. WILSON Np MAGNETOGRAM
Solid-Plus
Dotted-Minus

DELTAY = 12.7
DELTAX = 9.5

E W

Levels
±1 5
±1±1 10
±1±1±1 20
±1±1±1±1 40
±1±1±1±1±1 80

17.11 - 18.52 UT

Sp

Np Np Np

Sp

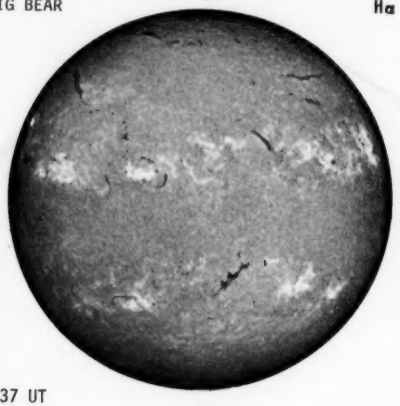
Sp

02

BIG BEAR

Np

Hα



E W

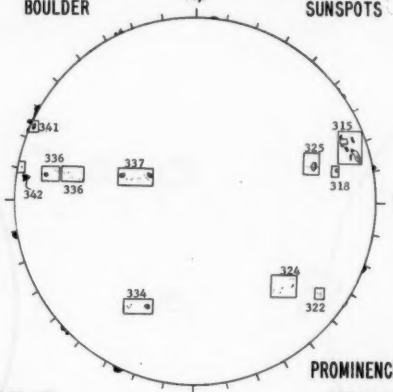
1837 UT

Sp

BOULDER

Np

SUNSPOTS



E W

PROMINENCES

1440 UT

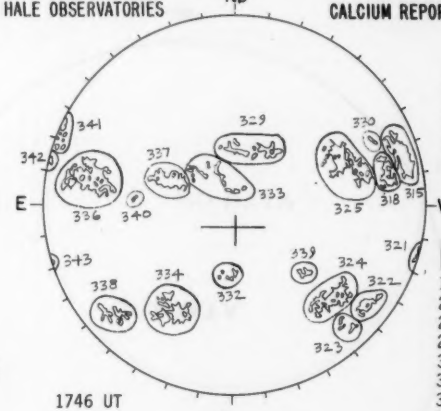
Sp

1650 UT

HALE OBSERVATORIES

Np

CALCIUM REPORT



E W

1746 UT

Sp

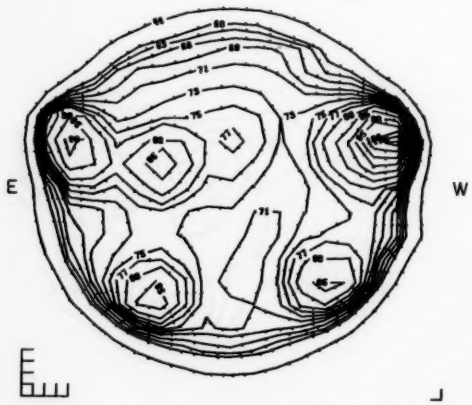
V GOOD

15- 5000-3.5
22- 1800-2.5
24- 3000-3.0
25- 4000-3.0
34- 2500-3.0
36- 4700-3.5
37- 1600-3.0
41- 1500-3.5

NOSC LA POSTA

Np

2.0 CM



E W

1644 UT

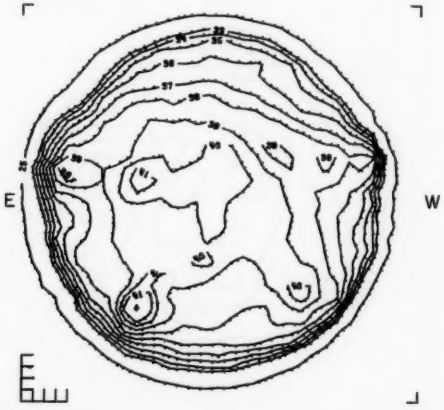
Sp

Ant. Temp. Unit 100° K

NOSC LA POSTA

Np

8.6 MM



E W

1546 UT

Sp

Ant. Temp. Unit 100° K

STANFORD

Np

MAGNETOGRAM

Solid - Plus; zero level
Dashed - Minus

E

NO DATA

W

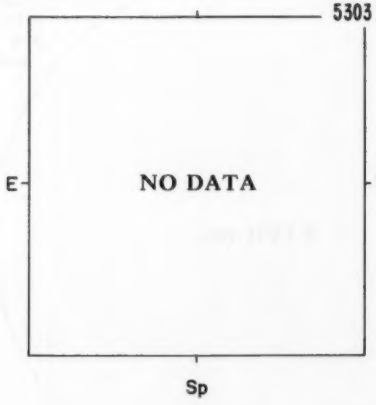
Levels
0 μT
± 50
±100
±200

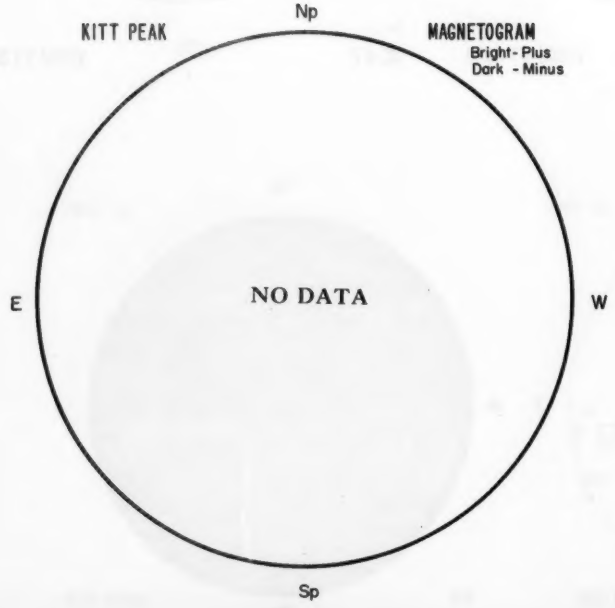
Sp

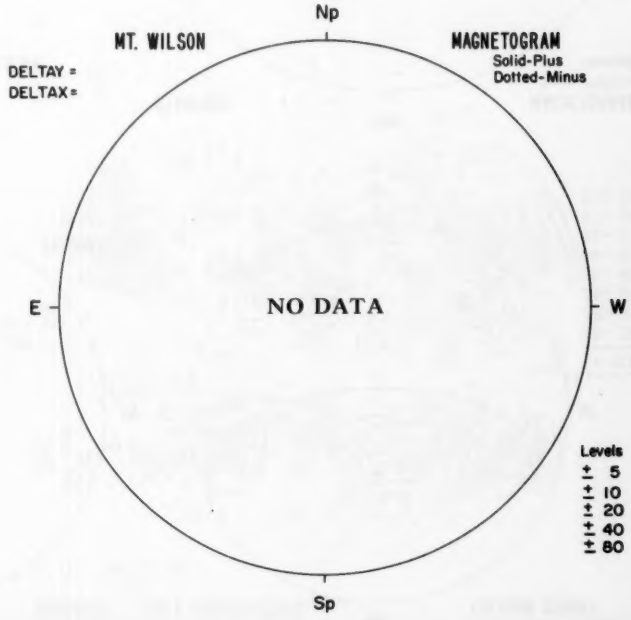
53
Oct 79

OCTOBER 3, 1979 (P = 26.10, B_o = 6.63, L_o = 51.61)

SACRAMENTO PEAK Np CORONA (1.15 $R_\odot$)
5303 Å







Sp

Sp

03

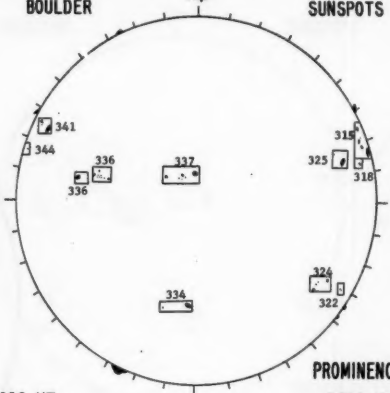
BIG BEAR Np Hα

E W

1907 UT

Sp

BOULDER Np SUNSPOTS



E W

PROMINENCES

1620 UT 1633 UT

Sp

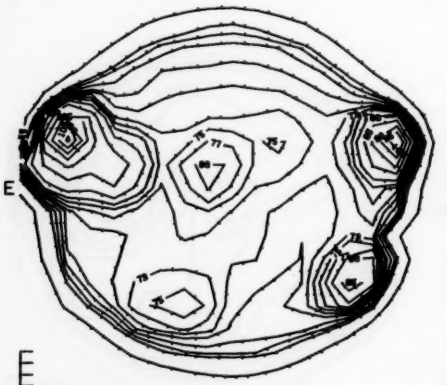
HALE OBSERVATORIES Np CALCIUM REPORT

NO DATA

E W

Sp

NOSC LA POSTA Np 2.0 CM

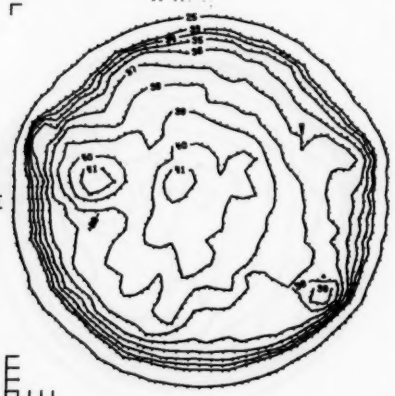


E W

1653 UT

Sp Ant. Temp. Unit 100° K

NOSC LA POSTA Np 8.6 MM



E W

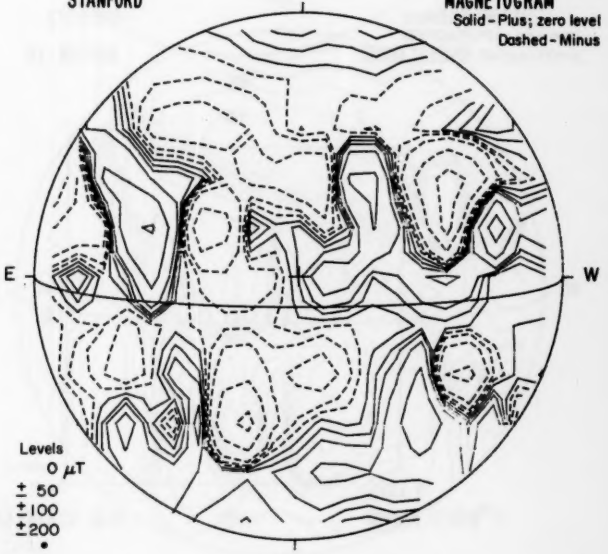
1552 UT

Sp Ant. Temp. Unit 100° K

STANFORD Np MAGNETOGRAM

Solid - Plus; zero level

Dashed - Minus



E W

Levels

0 μT

± 50

±100

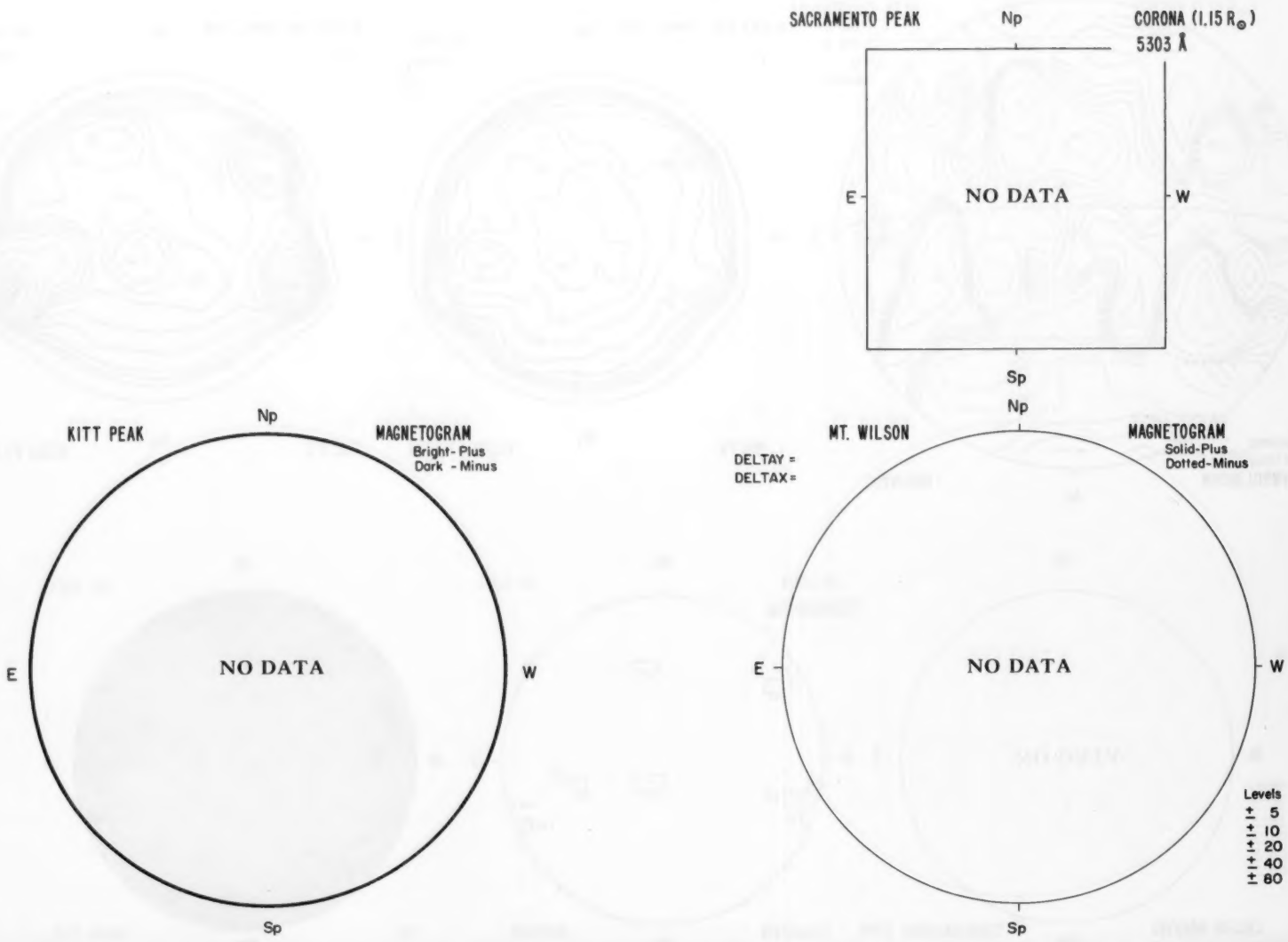
±200

Sp

55

Oct 79

OCTOBER 4, 1979 (P = 26.15, B_o = 6.58, L_o = 38.41)



Sp

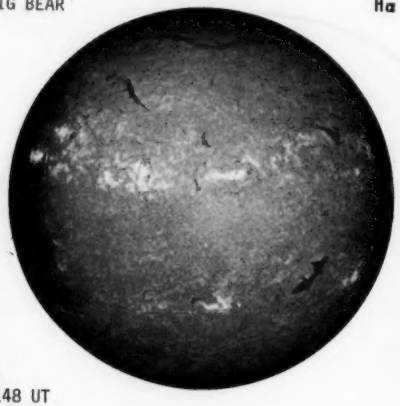
Sp

04

BIG BEAR

Np

Hα



E

W

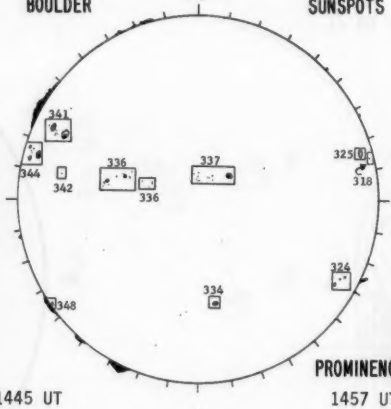
2148 UT

Sp

BOULDER

Np

SUNSPOTS



E

W

1445 UT

Sp

PROMINENCES

1457 UT

HALE OBSERVATORIES

Np

CALCIUM REPORT

NO DATA

E

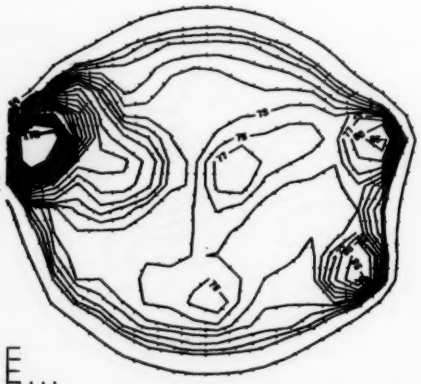
W

Sp

NOSC LA POSTA

Np

2.0 CM



E

W

1627 UT

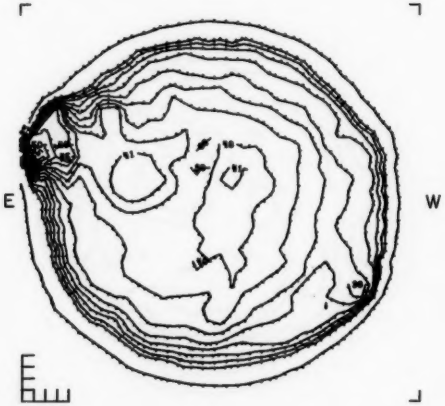
Sp

Ant. Temp. Unit 100° K

NOSC LA POSTA

Np

8.6 MM



E

W

1529 UT

Sp

Ant. Temp. Unit 100° K

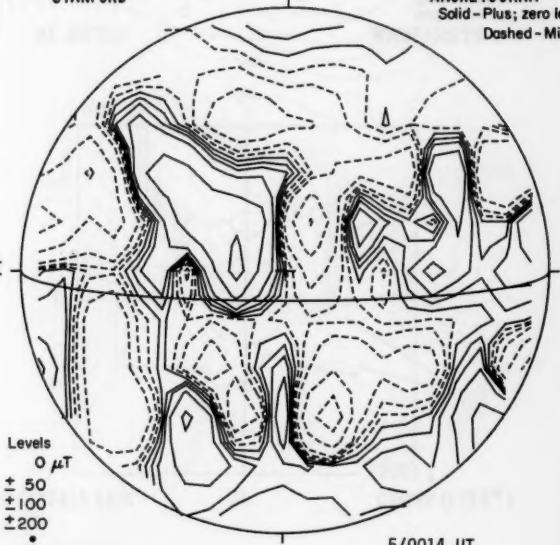
STANFORD

Np

MAGNETOGRAM

Solid - Plus; zero level

Dashed - Minus



E

W

Levels

0 μT

± 50

±100

±200

•

•

•

Sp

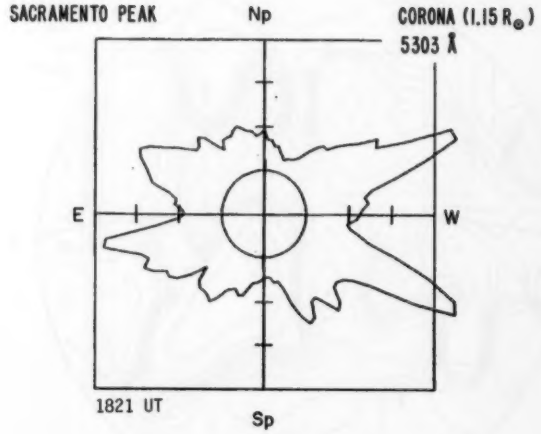
5/0014 UT

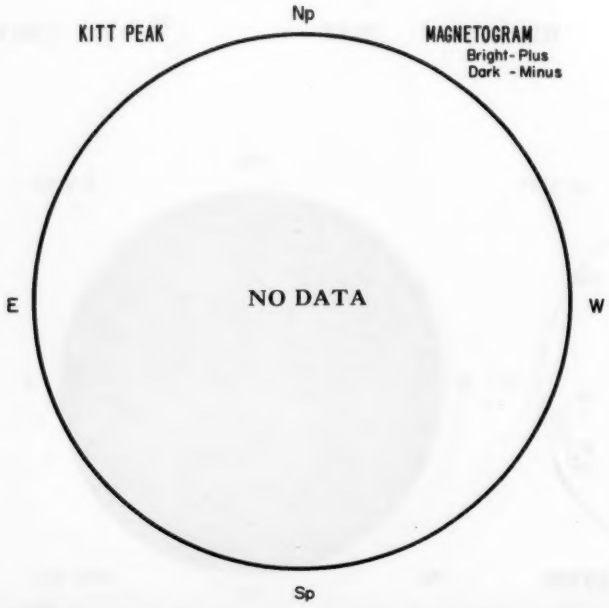
57

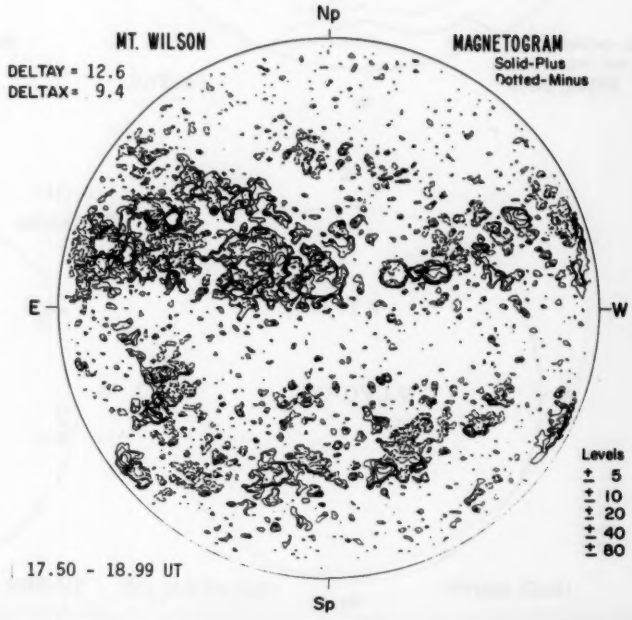
Oct 79

OCTOBER 5, 1979 (P = 26.20, B_o = 6.53, L_o = 25.22)

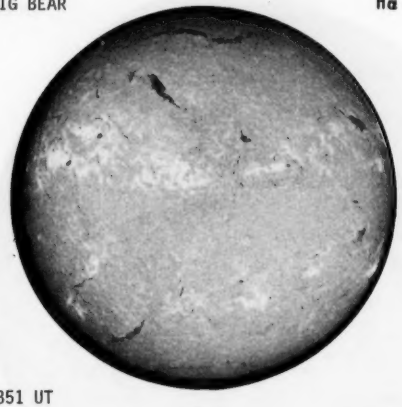
SACRAMENTO PEAK







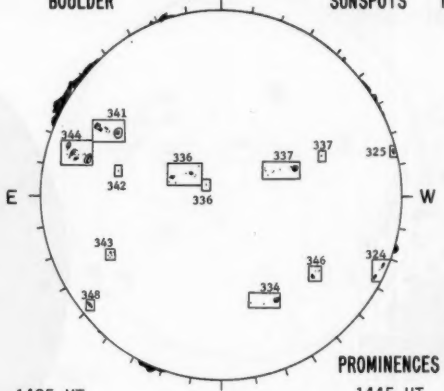
BIG BEAR Np Hα



E W

1851 UT Sp

BOULDER Np SUNSPOTS



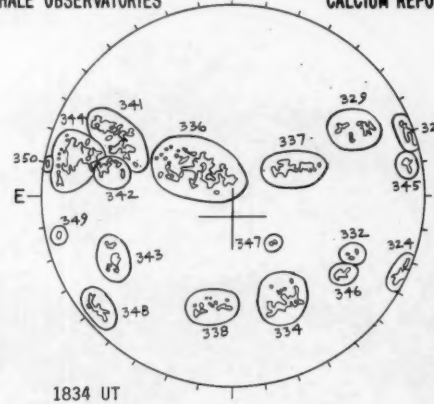
E W

1425 UT Sp

PROMINENCES

1445 UT

HALE OBSERVATORIES Np CALCIUM REPORT

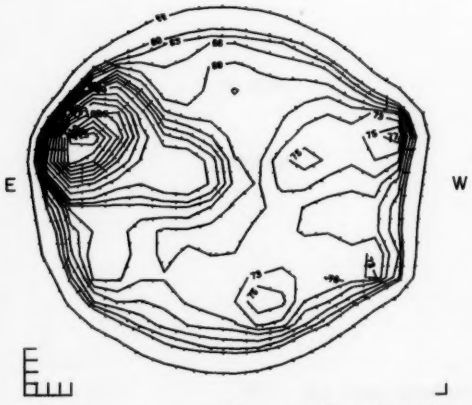


E W

1834 UT Sp

GOOD	
24- 2000-2.5	
34- 2100-3.0	
36- 4500-3.0	
37- 1600-3.0	
41- 3300-3.0	
42- 0800-2.5	
43- 0900-3.0	
44- 4700-3.5	
46- 0700-2.5	
47- 0100-2.5	
48- 1500-2.5	

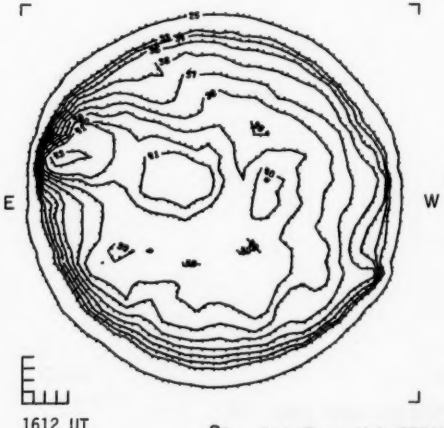
NOSC LA POSTA Np 2.0 CM



E W

1708 UT Sp Ant. Temp. Unit 100° K

NOSC LA POSTA Np 8.6 MM



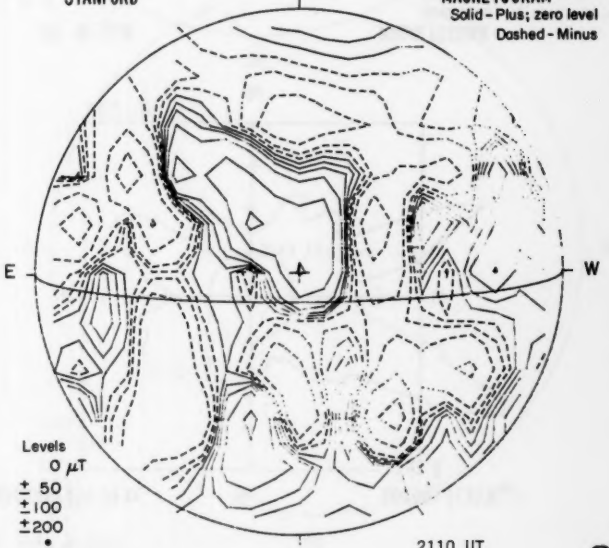
E W

1612 UT Sp Ant. Temp. Unit 100° K

STANFORD Np MAGNETOGRAM

Solid - Plus; zero level

Dashed - Minus



E W

Levels 0 μT

± 50

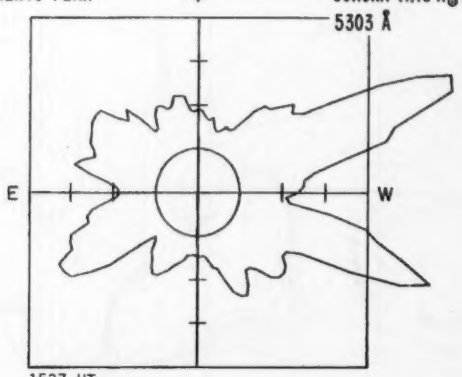
± 100

± 200

2110 UT Sp

OCTOBER 6, 1979 (P = 26.24, B_o = 6.48, L_o = 12.02)

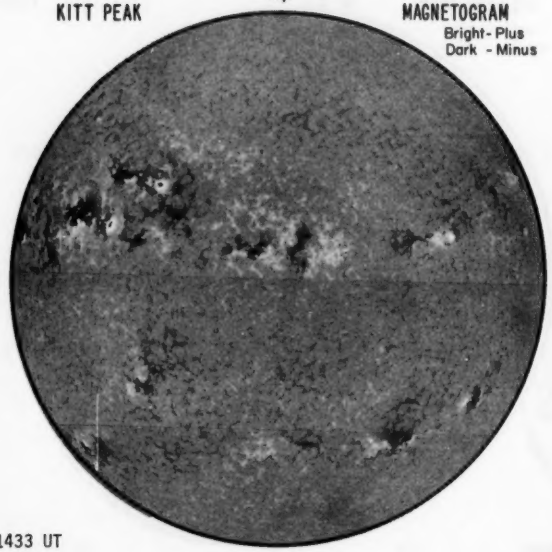
SACRAMENTO PEAK Np CORONA (1.15 $R_\odot$)
5303 Å



1537 UT

Sp

KITT PEAK Np MAGNETOGRAM
Bright - Plus
Dark - Minus

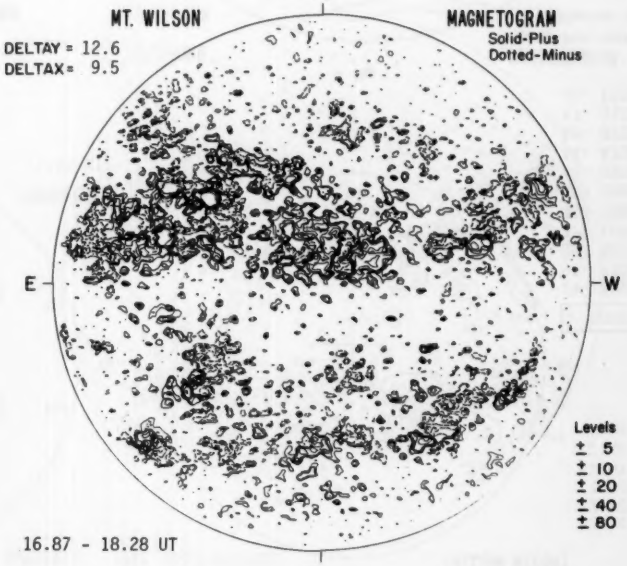


1433 UT

Sp

Np

MT. WILSON MAGNETOGRAM
Solid-Plus
Dotted-Minus
DELTAY = 12.6
DELTAX = 9.5



16.87 - 18.28 UT

Sp

06

BIG BEAR Np Hα

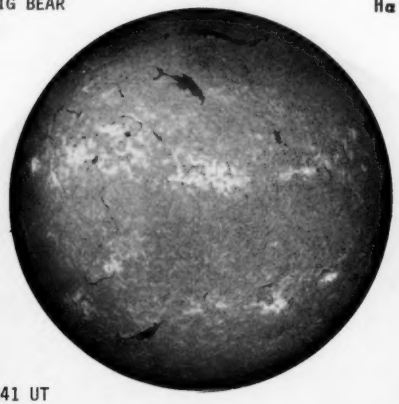
BOULDER Np

SUNSPOTS HALE OBSERVATORIES Np CALCIUM REPORT

Sp

06

BIG BEAR Np Hα

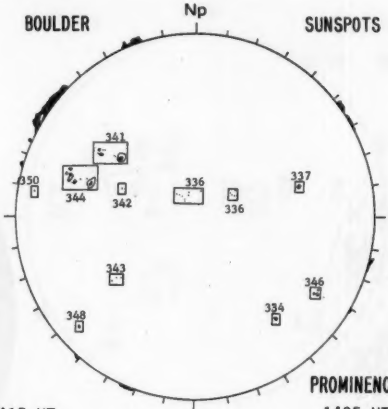


E W

1841 UT

Sp

BOULDER Np SUNSPOTS



E W

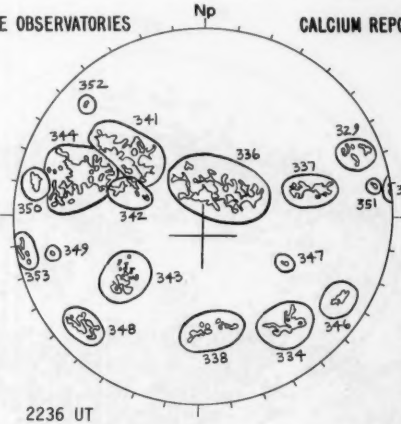
1415 UT

Sp

PROMINENCES

1405 UT

HALE OBSERVATORIES Np CALCIUM REPORT



E W

2236 UT

Sp

GOOD	
34- 2100-3.0	
36- 4500-3.5	
37- 1600-2.5	
41- 3700-3.0	
43- 1200-2.5	
44- 5400-3.0	
46- 0900-3.0	
48- 1800-2.5	
50- 1000-3.0	

NOSC LA POSTA Np 2.0 CM

NO DATA

E SCHEDULE W

---- UT Sp Ant. Temp. Unit 100° K

NOSC LA POSTA Np 8.6 MM

NO DATA

E SCHEDULE W

---- UT Sp Ant. Temp. Unit 100° K

STANFORD Np

MAGNETOGRAM
Solid - Plus; zero level
Dashed - Minus

NO DATA

E W

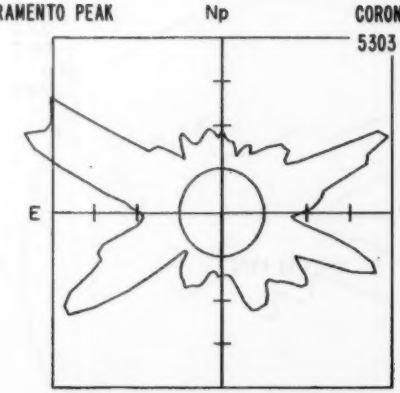
Sp

Levels
0 μT
± 50
±100
±200
•
•
•

61
Oct 79

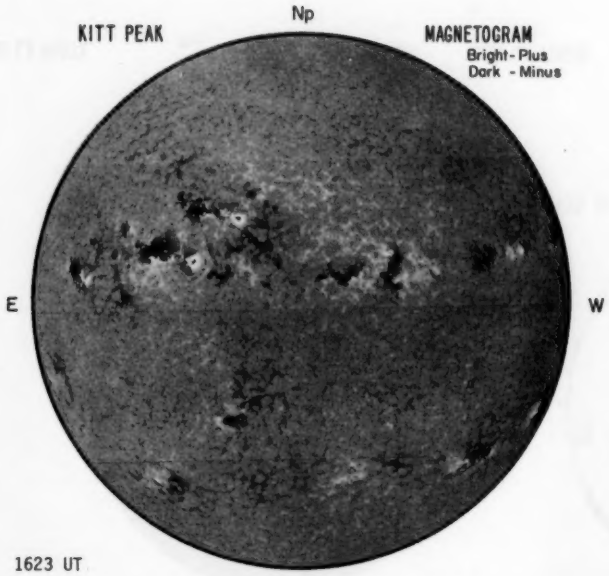
OCTOBER 7, 1979 (P = 26.27, B_o = 6.42, L_o = 358.83)

SACRAMENTO PEAK



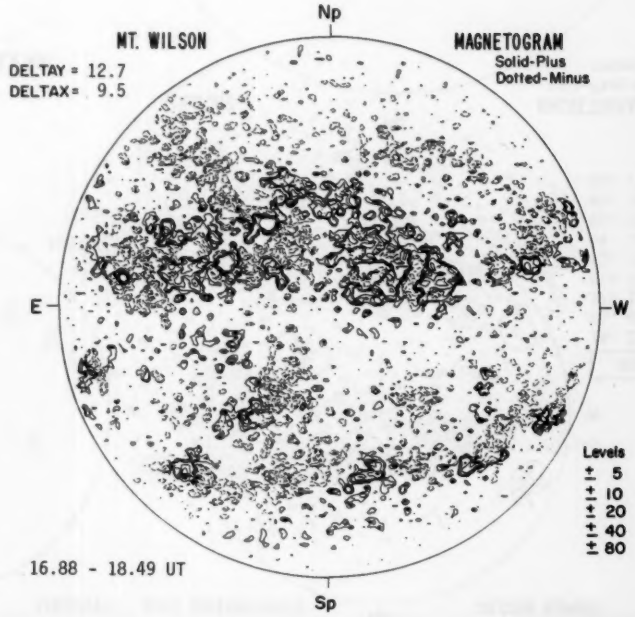
1557 UT

KITT PEAK



1623 UT

MT. WILSON



16.88 - 18.49 UT

07

BIG BEAR

Hα

BOULDER

SUNSPOTS

HALE OBSERVATORIES

CALCIUM REPORT

Sp

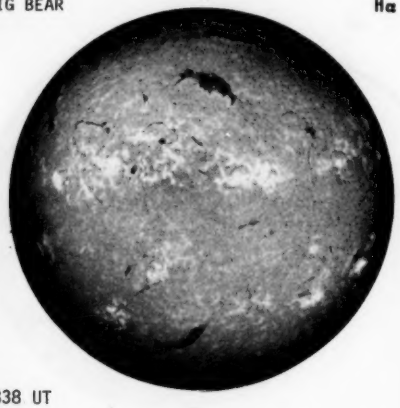
Sp

07

BIG BEAR

Np

Hα



E W

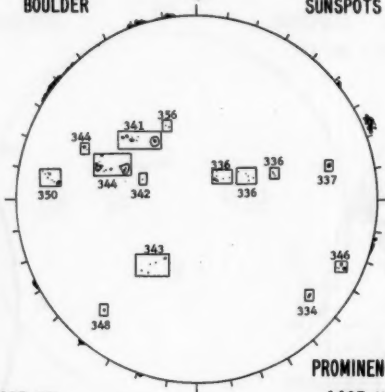
1838 UT

Sp

BOULDER

Np

SUNSPOTS



E W

1407 UT

Sp

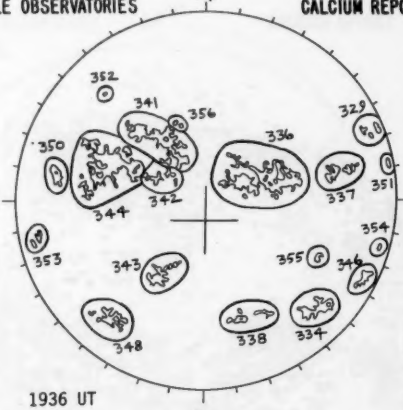
PROMINENCES

1407 UT

HALE OBSERVATORIES

Np

CALCIUM REPORT



E W

1936 UT

Sp

V GOOD	
34-	2100-3.0
36-	4200-3.5
37-	1500-3.0
41-	3700-3.5
43-	1300-2.5
44-	5200-3.5
46-	1100-3.0
48-	1600-2.5
50-	1100-3.5
55-	0300-3.5
56-	0200-3.0

NOSC LA POSTA

Np

2.0 CM

NO DATA

E SCHEDULE W

---- UT

Sp

Ant. Temp. Unit 100° K

NOSC LA POSTA

Np

8.6 MM

NO DATA

E SCHEDULE W

---- UT

Sp

Ant. Temp. Unit 100° K

STANFORD

Np

MAGNETOGRAM

Solid - Plus; zero level

Dashed - Minus

NO DATA

E W

Sp

Levels

0 μT

± 50

±100

±200

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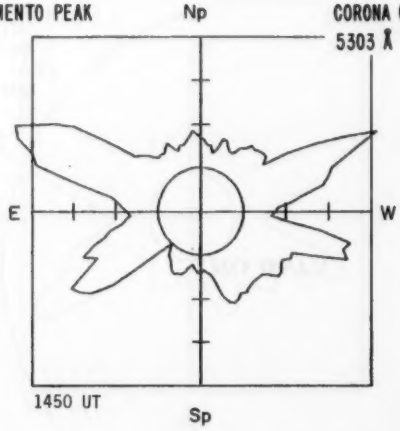
•

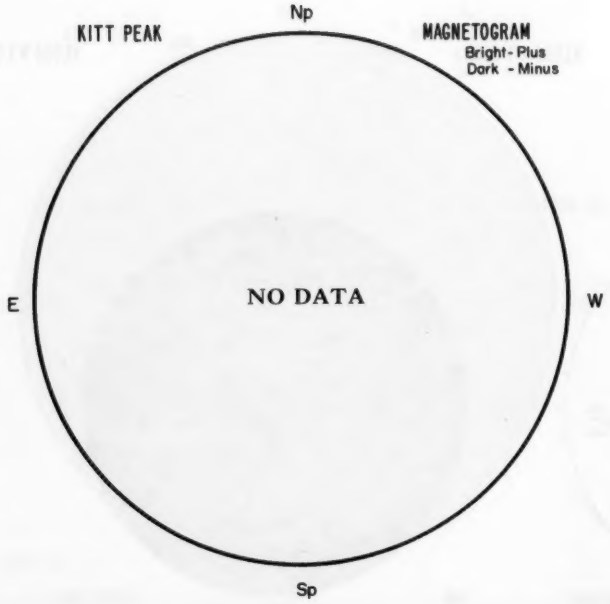
63

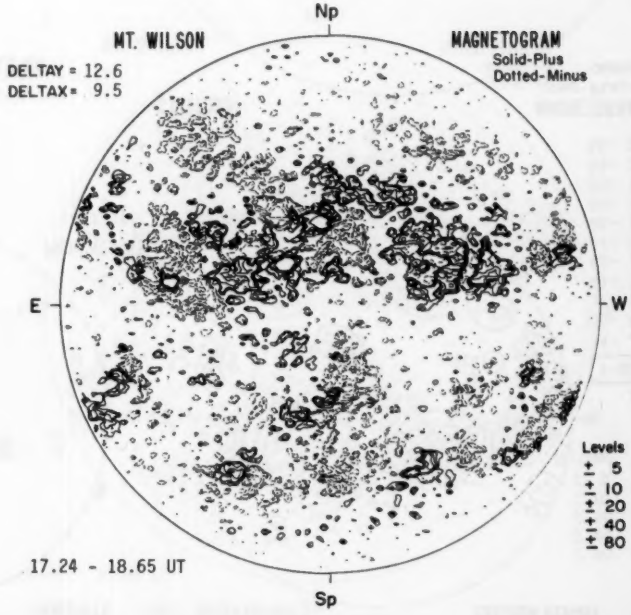
Oct 79

OCTOBER 8, 1979 (P = 26.29, B_o = 6.36, L_o = 345.63)

SACRAMENTO PEAK



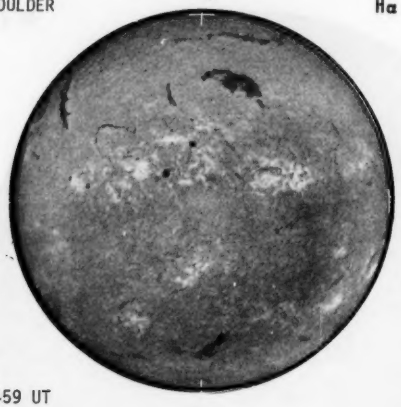




Sp Sp

08

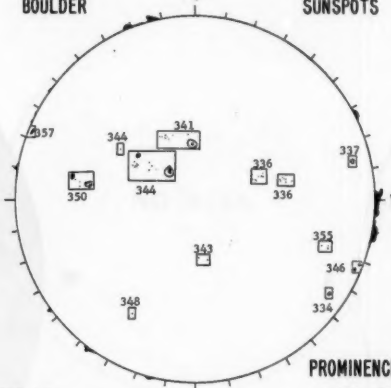
BOULDER Np Hα



E W

1459 UT Sp

BOULDER Np SUNSPOTS



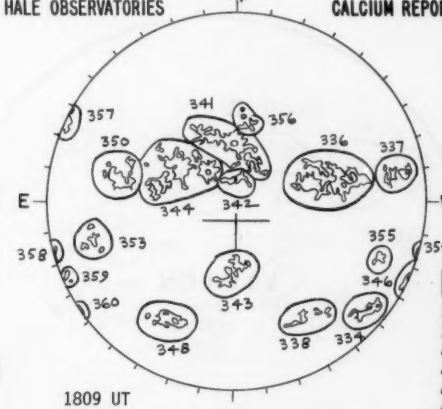
E W

1415 UT Sp

PROMINENCES

1459 UT

HALE OBSERVATORIES Np CALCIUM REPORT



E W

1809 UT Sp

V GOOD

34- 2100-3.0
36- 5300-3.5
41- 3500-3.0
43- 1300-2.5
44- 5000-3.5
46- 1300-3.0
48- 1800-2.5
50- 1600-3.5
55- 0400-3.5
57- 2000-2.5

NOSC LA POSTA Np 2.0 CM

NO DATA

E SCHEDULE W

---- UT Sp Ant. Temp. Unit 100° K

NOSC LA POSTA Np 8.6 MM

NO DATA

E SCHEDULE W

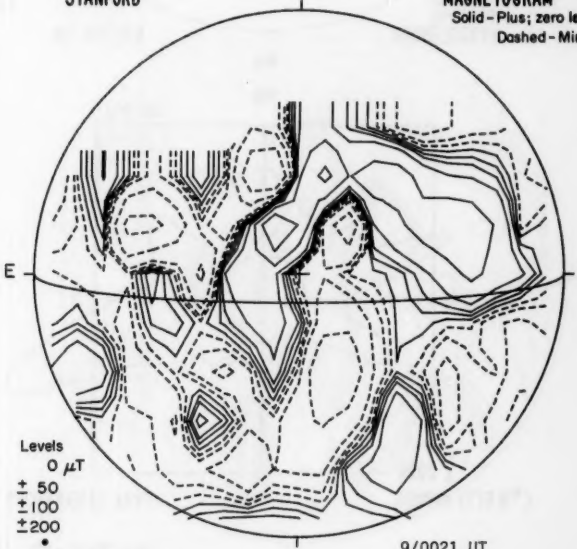
---- UT Sp Ant. Temp. Unit 100° K

STANFORD Np

MAGNETOGRAM

Solid - Plus; zero level

Dashed - Minus



E W

Levels

0 μT

± 50

±100

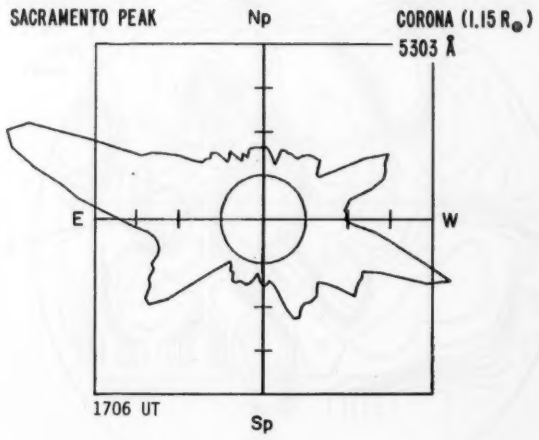
±200

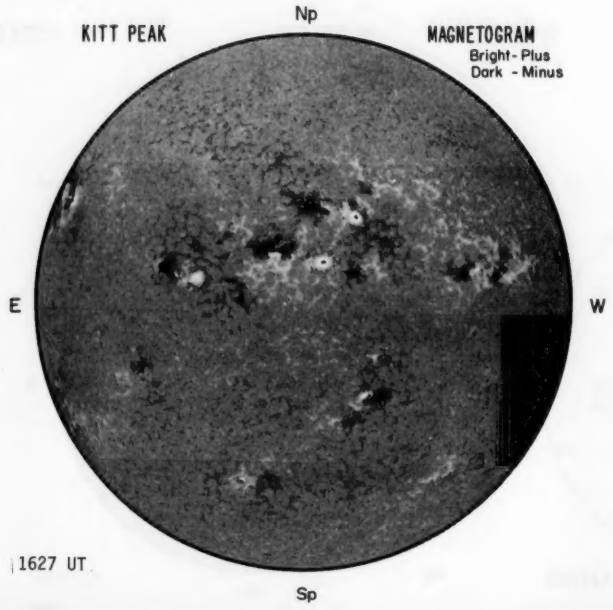
9/0021 UT Sp

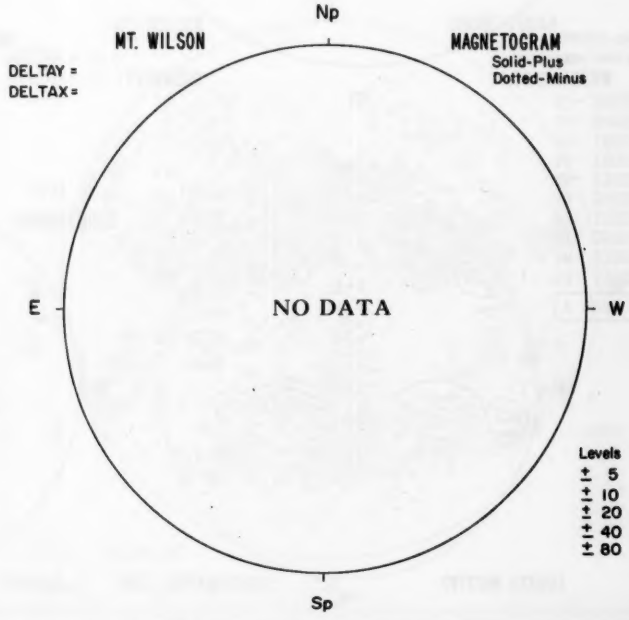
65

Oct 79

OCTOBER 9, 1979 (P = 26.31, B_o = 6.30, L_o = 332.44)







09

Np

Np

Np

Sp

Sp

09

BIG BEAR

Np

Hα

E

W

1820 UT

Sp

BOULDER

Np

SUNSPOTS

NO DATA

E

W

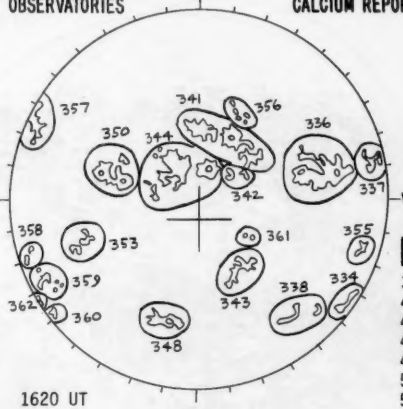
PROMINENCES

Sp

HALE OBSERVATORIES

Np

CALCIUM REPORT



E

W

1620 UT

Sp

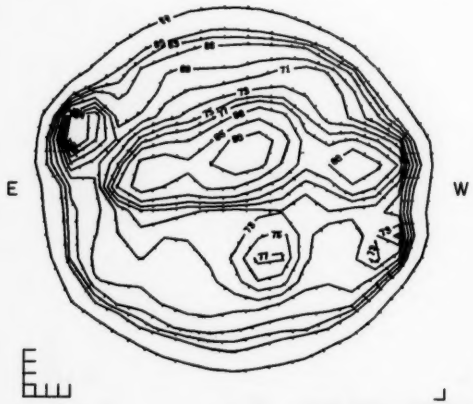
V POOR	

36- 5000-3.5
41- 3800-3.5
42- 0500-2.5
43- 1300-2.5
44- 4600-3.5
50- 2700-3.0
55- 0900-4.0
57- 4000-3.5

NOSC LA POSTA

Np

2.0 CM



E

W

1701 UT

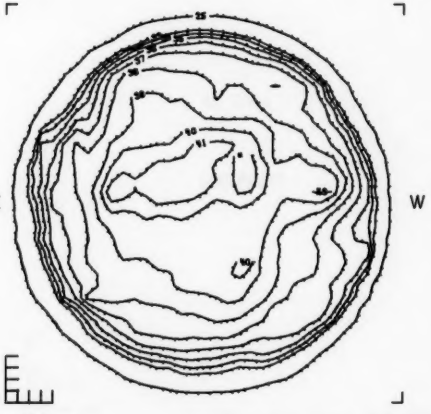
Sp

Ant. Temp. Unit 100° K

NOSC LA POSTA

Np

8.6 MM



E

W

1546 UT

Sp

Ant. Temp. Unit 100° K

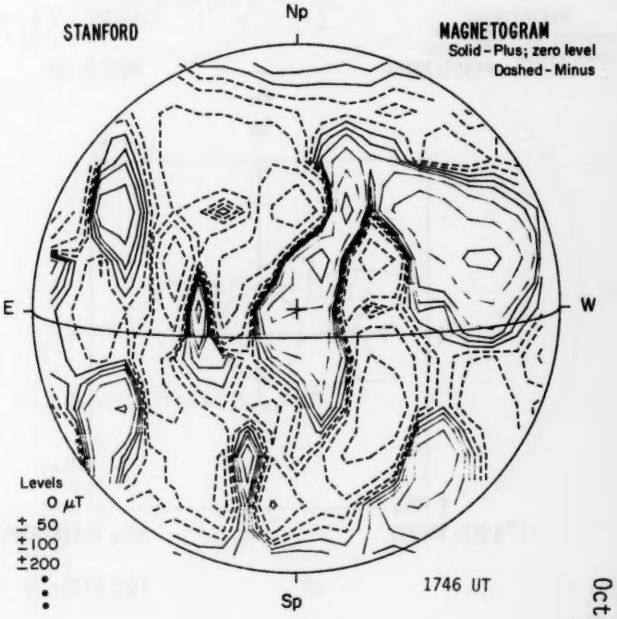
STANFORD

Np

MAGNETOGRAM

Solid - Plus; zero level

Dashed - Minus



E

W

Levels

0 μT

± 50

±100

±200

1746 UT

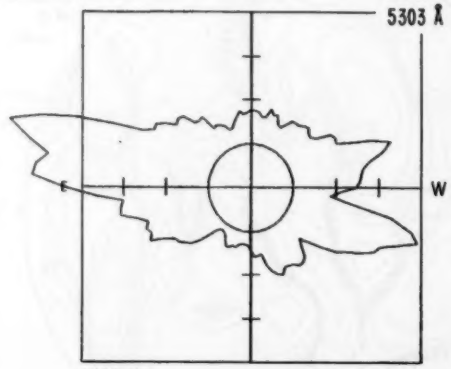
Sp

67

Oct 79

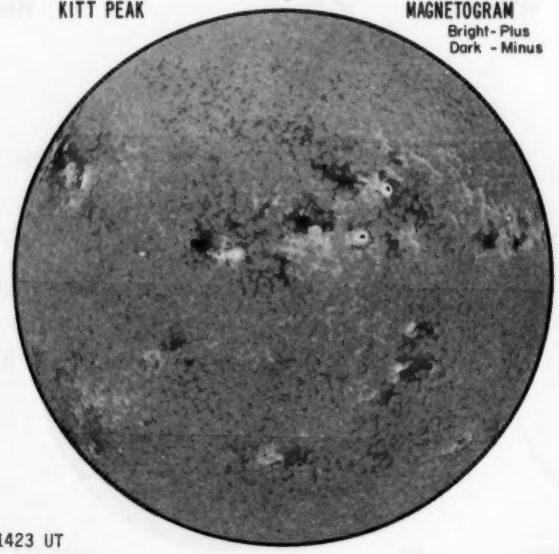
OCTOBER 10, 1979 (P = 26.32, B_o = 6.24, L_o = 319.25)

SACRAMENTO PEAK Np CORONA (1.15 $R_\odot$)
5303 Å



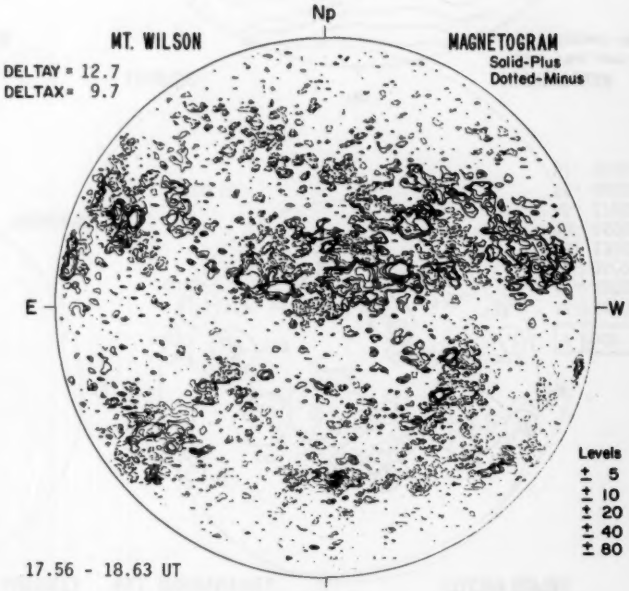
1443 UT Sp

KITT PEAK Np MAGNETOGRAM
Bright - Plus
Dark - Minus



1423 UT Sp

MT. WILSON Np MAGNETOGRAM
Solid-Plus
Dotted-Minus
DELTAY = 12.7
DELTAX = 9.7



17.56 - 18.63 UT Sp

IO
BOULDER Np Hα

BOULDER Np

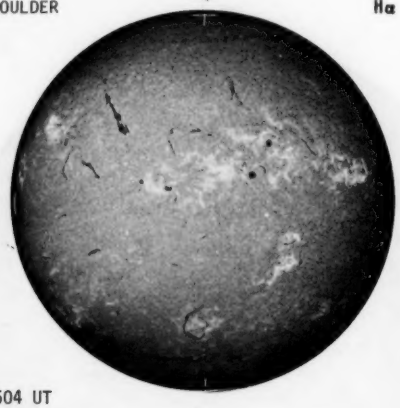
SUNSPOTS HALE OBSERVATORIES Np CALCIUM REPORT

Sp

Sp

IO

BOULDER Np Hα

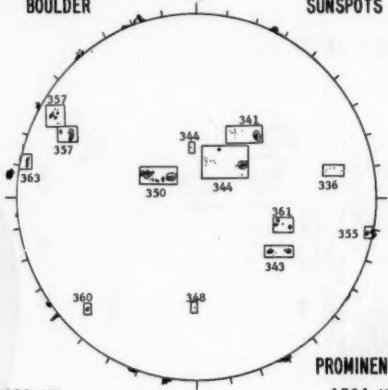


E W

1504 UT

Sp

BOULDER Np SUNSPOTS



E W

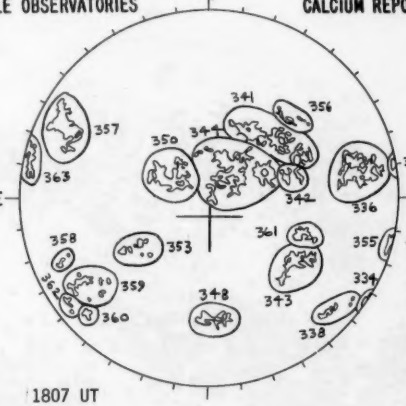
1420 UT

Sp

PROMINENCES

1504 UT

HALE OBSERVATORIES Np CALCIUM REPORT



E W

1807 UT

Sp

GOOD	

34- 0800-2.5
36- 4500-3.0
41- 3500-3.0
42- 0600-2.5
43- 1800-2.5
44- 4600-3.0
48- 1400-2.5
50- 2500-3.0
53- 0700-2.5
55- 1200-2.5
57- 5000-3.5
63- 3000-3.0

MAGNETOGRAM
Solid - Plus; zero level
Dashed - Minus

NOSC LA POSTA Np 2.0 CM

NO DATA

E EQUIPMENT W

---- UT Sp Ant. Temp. Unit 100° K

NOSC LA POSTA Np 8.6 MM

NO DATA

E EQUIPMENT W

---- UT Sp Ant. Temp. Unit 100° K

STANFORD Np

NO DATA

E W

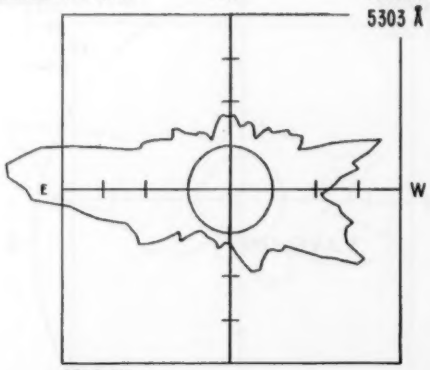
Sp

Levels
0 μT
± 50
±100
±200

69
Oct 79

OCTOBER 11, 1979 (P = 26.33, B_o = 6.17, L_o = 306.06)

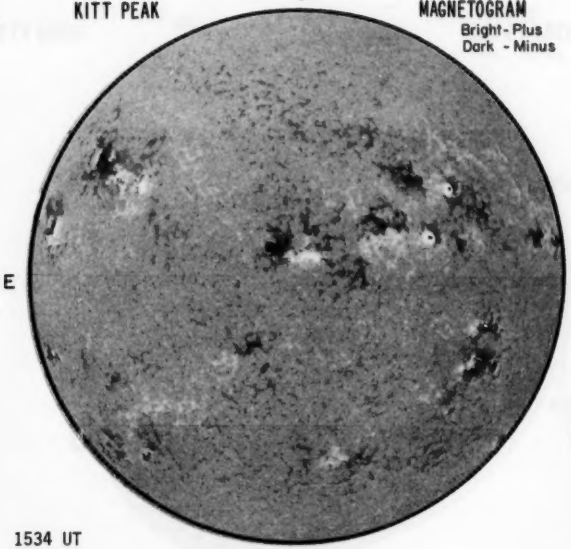
SACRAMENTO PEAK Np CORONA (1.15 $R_\odot$)
5303 Å



1508 UT

Sp

KITT PEAK Np MAGNETOGRAM
Bright - Plus
Dark - Minus



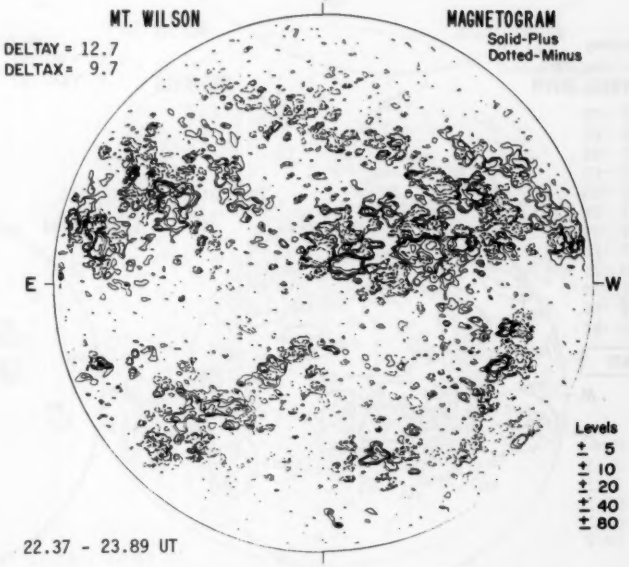
1534 UT

Sp

Np

MT. WILSON MAGNETOGRAM
Solid-Plus
Dotted-Minus

DELTAY = 12.7
DELTAX = 9.7



22.37 - 23.89 UT

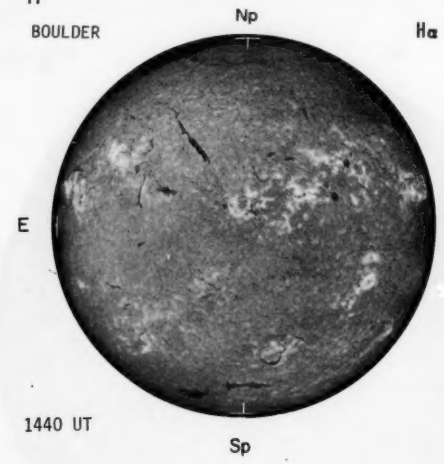
Sp

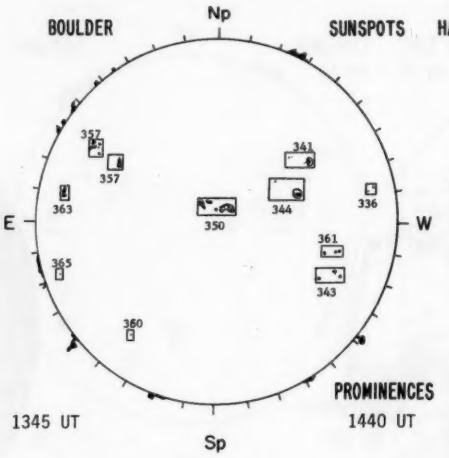
11

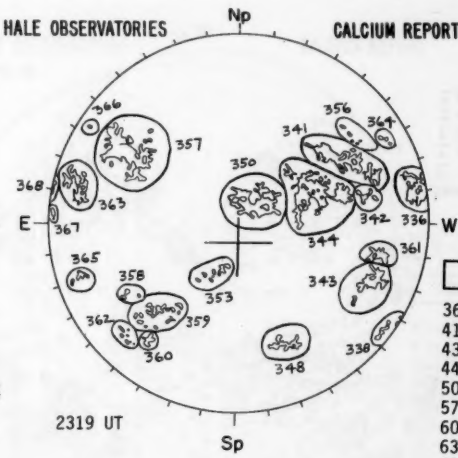
BOULDER Np Hα

BOULDER Np

SUNSPOTS HALE OBSERVATORIES Np CALCIUM REPORT

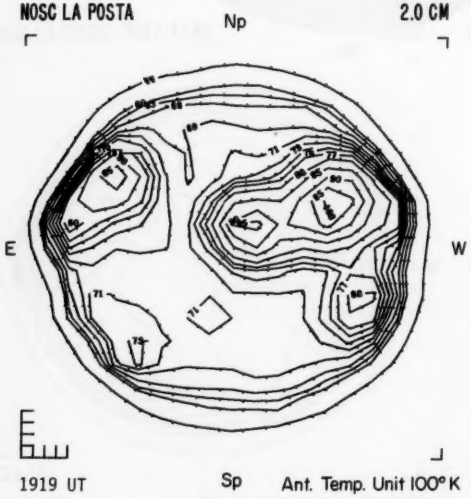


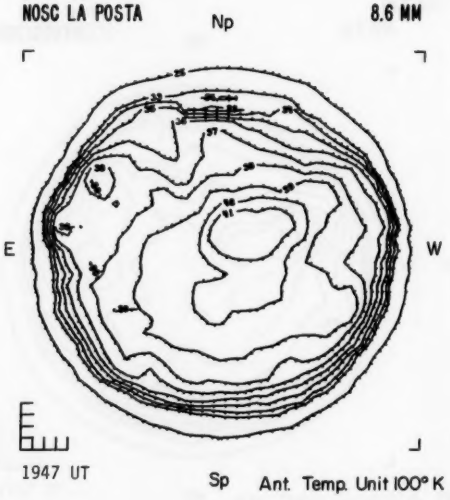


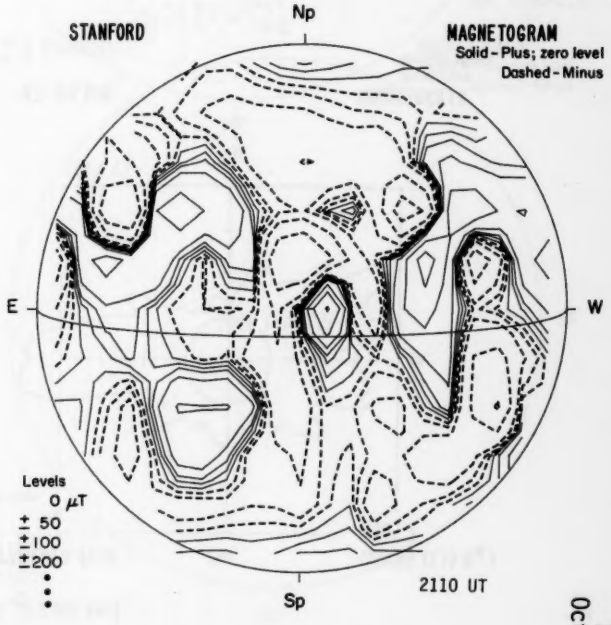


GOOD

36- 4000-3.0
41- 3500-2.5
43- 2200-2.5
44- 5000-3.0
50- 2500-3.5
57- 5500-3.5
60- 0700-2.5
63- 3000-3.0
64- 0200-2.5
65- 0500-2.5



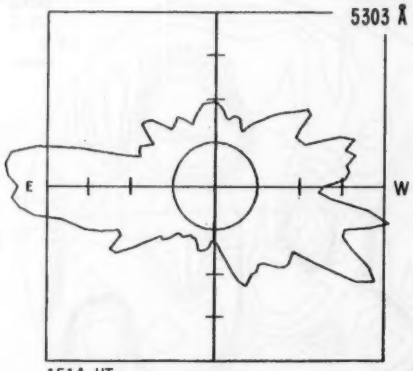




71
Oct 79

OCTOBER 12, 1979 (P=26.32, B_o=6.10, L_o=292.86)

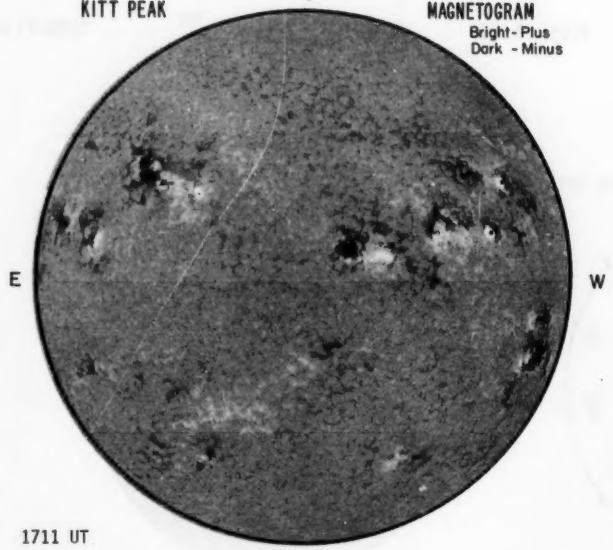
SACRAMENTO PEAK Np CORONA (1.15 $R_\odot$)
5303 Å



1514 UT

Sp

KITT PEAK Np MAGNETOGRAM
Bright - Plus
Dark - Minus



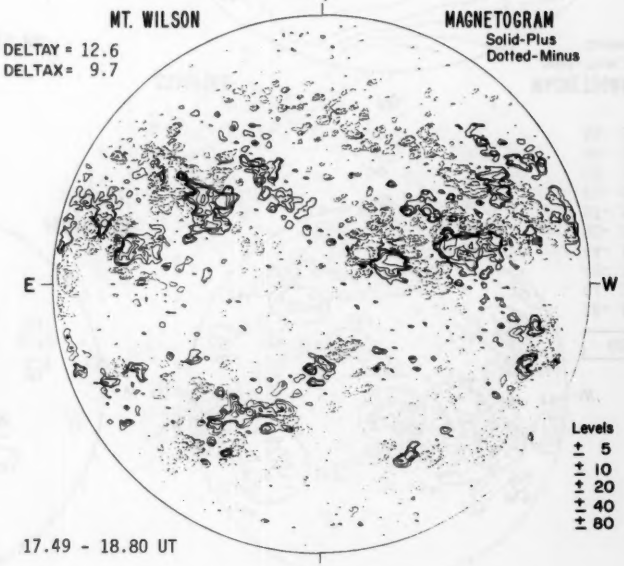
1711 UT

Sp

Np

MT. WILSON MAGNETOGRAM
Solid-Plus
Dotted-Minus

DELTAY = 12.6
DELTAX = 9.7



17.49 - 18.80 UT

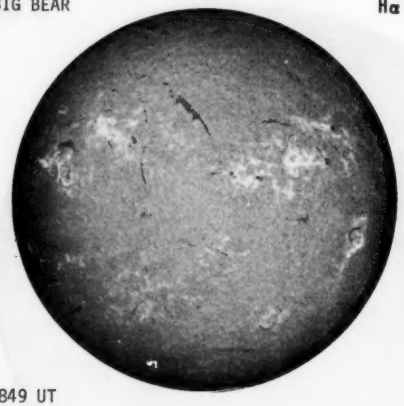
Sp

12

Np Np Np

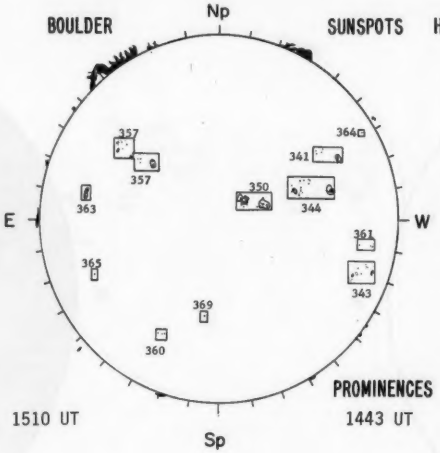
12

BIG BEAR Hα



1849 UT

BOULDER SUNSPOTS

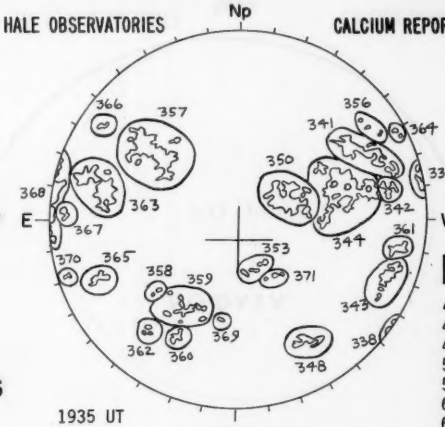


1510 UT

PROMINENCES

1443 UT

HALE OBSERVATORIES CALCIUM REPORT

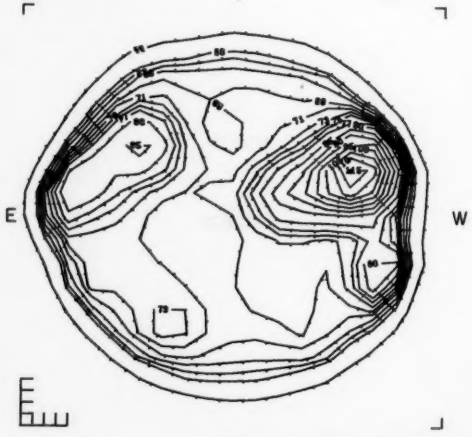


1935 UT

POOR	

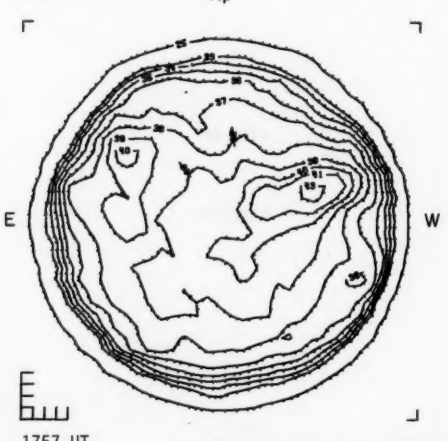
41- 3500-2.5
43- 2300-3.0
44- 5000-3.5
50- 3100-3.0
57- 5000-3.0
60- 0500-2.5
61- 1300-3.5
63- 3500-3.0
66- 0300-3.0
68- 6100-2.5

NOSC LA POSTA 2.0 CM



1856 UT Ant. Temp. Unit 100° K

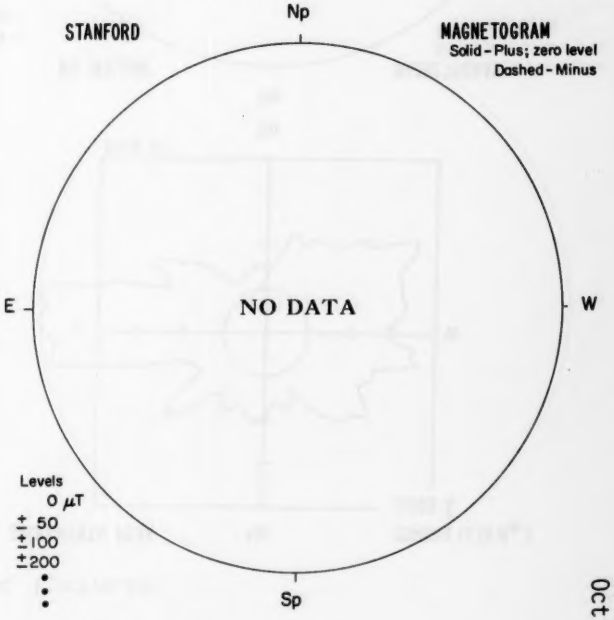
NOSC LA POSTA 8.6 MM



1757 UT Ant. Temp. Unit 100° K

STANFORD MAGNETOGRAM

Solid - Plus; zero level
Dashed - Minus

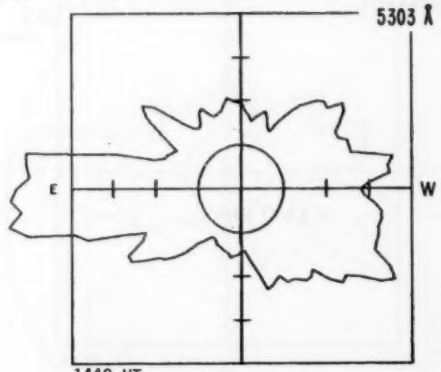


Levels
0 μT
± 50
±100
±200

73
Oct 79

OCTOBER 13, 1979 (P=26.31, B_o=6.04, L_o=279.67)

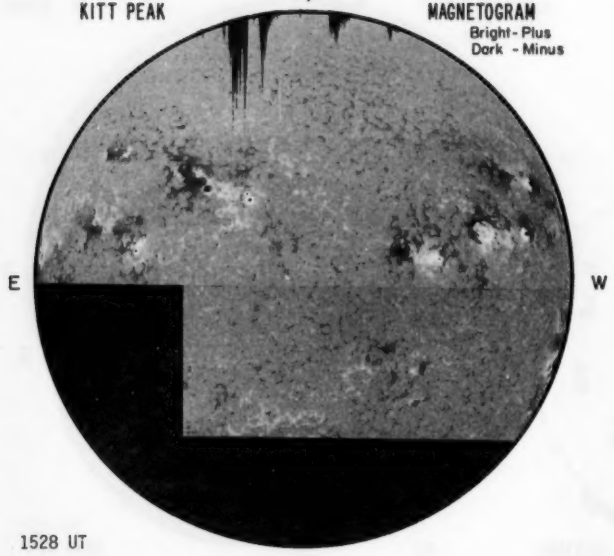
SACRAMENTO PEAK Np CORONA (1.15 $R_\odot$)
5303 Å



1449 UT

Sp

KITT PEAK Np MAGNETOGRAM
Bright - Plus
Dark - Minus

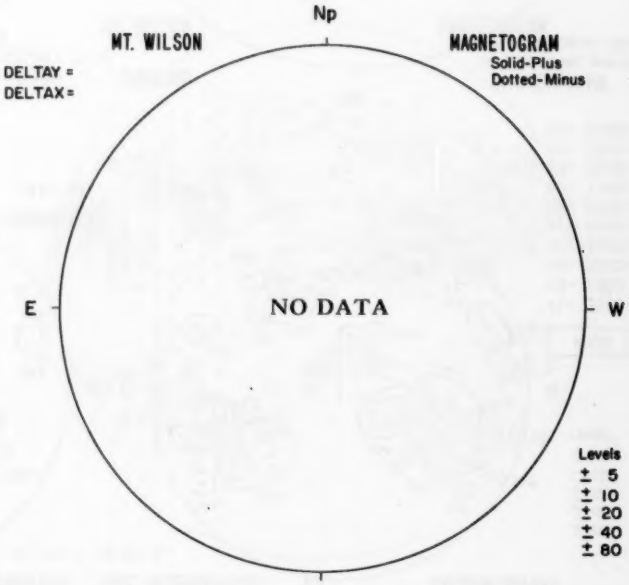


1528 UT

Sp

MT. WILSON Np MAGNETOGRAM
Solid-Plus
Dotted-Minus

DELTAY =
DELTAX=



Levels
± 5
± ± 10
± ± ± 20
± ± ± ± 40
± 80

Sp

13

BIG BEAR Np Hα

BOULDER Np

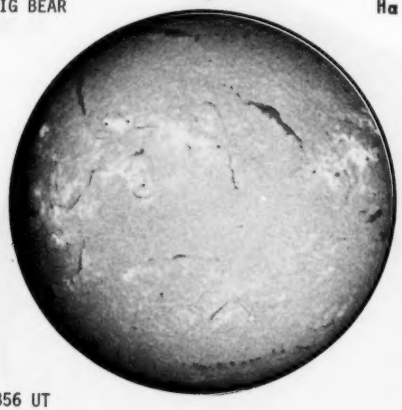
SUNSPOTS HALE OBSERVATORIES Np

CALCIUM REPORT

Sp

13

BIG BEAR Np Hα

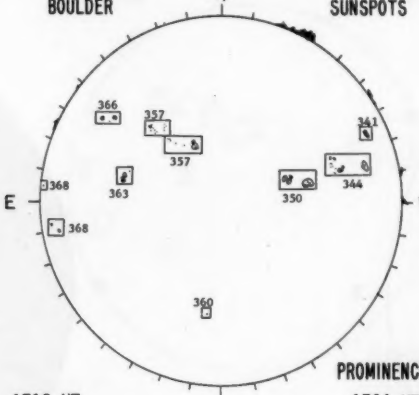


E W

1856 UT

Sp

BOULDER Np SUNSPOTS



E W

1710 UT

Sp

PROMINENCES

1724 UT

HALE OBSERVATORIES Np CALCIUM REPORT

NO DATA

E W

Sp

NOSC LA POSTA Np 2.0 CM

NO DATA

E W

SCHEDULE

---- UT

Sp Ant. Temp. Unit 100° K

NOSC LA POSTA Np 8.6 MM

NO DATA

E W

SCHEDULE

---- UT

Sp Ant. Temp. Unit 100° K

STANFORD Np MAGNETOGRAM

Solid - Plus; zero level

Dashed - Minus

NO DATA

E W

Levels

0 μT

± 50

±100

±200

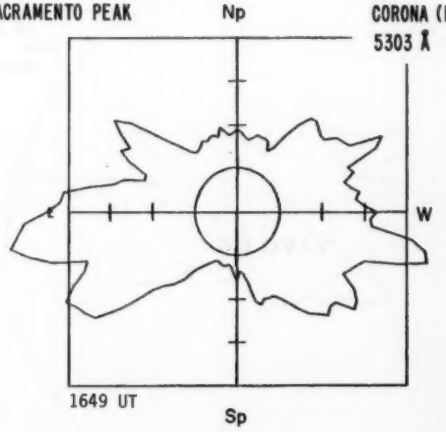
Sp

75

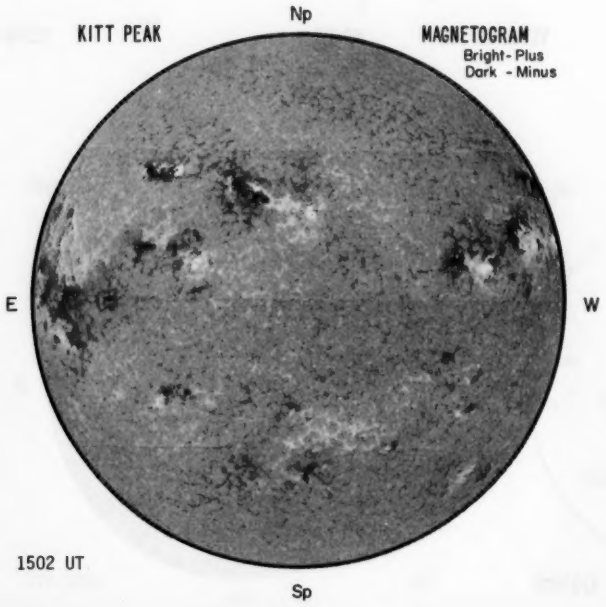
Oct 79

OCTOBER 14, 1979 (P = 26.29, B_o = 5.96, L_o = 266.48)

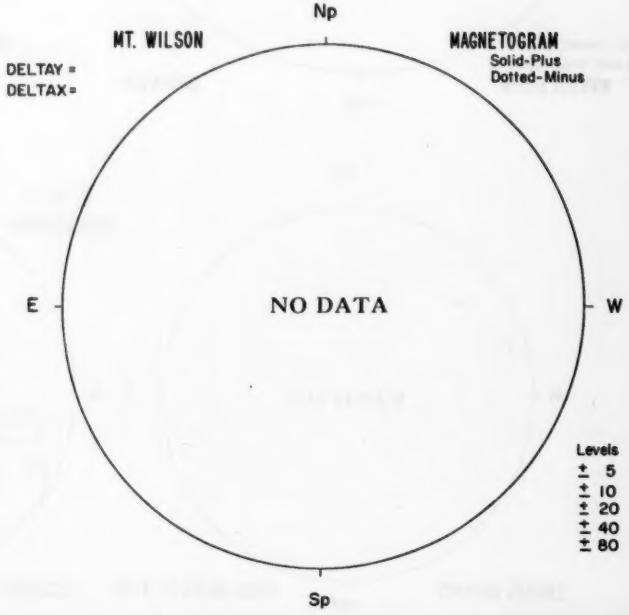
SACRAMENTO PEAK



KITT PEAK



MT. WILSON

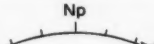


14

BIG BEAR

Hα

BOULDER



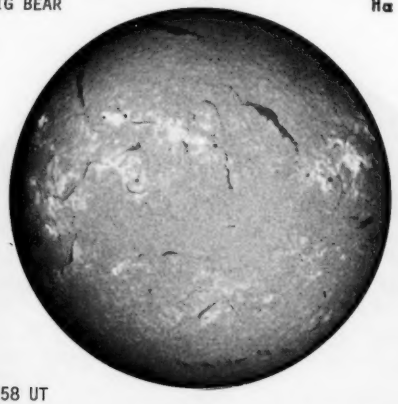
SUNSPOTS

HALE OBSERVATORIES

CALCIUM REPORT

14

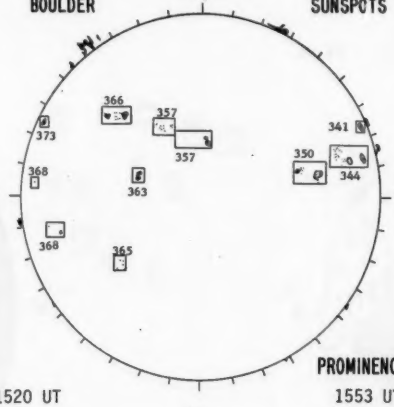
BIG BEAR Np Hα



E W

1858 UT Sp

BOULDER Np SUNSPOTS



E W

1520 UT Sp

HALE OBSERVATORIES Np CALCIUM REPORT

NO DATA

E W

PROMINENCES

1553 UT Sp

NOSC LA POSTA Np 2.0 CM

NO DATA

E W

SCHEDULE

---- UT Sp Ant. Temp. Unit 100° K

NOSC LA POSTA Np 8.6 MM

NO DATA

E W

SCHEDULE

---- UT Sp Ant. Temp. Unit 100° K

STANFORD Np MAGNETOGRAM

Solid - Plus; zero level

Dashed - Minus

NO DATA

E W

Sp

Levels

0 μT

± 50

±100

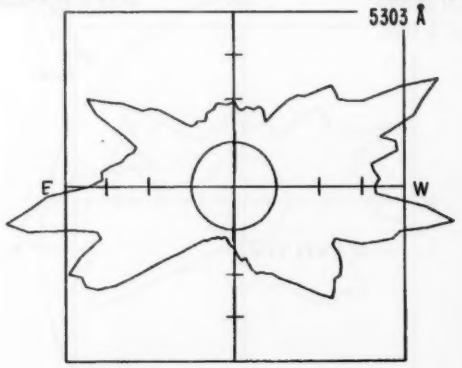
±200

77

Oct 79

OCTOBER 15, 1979 (P=26.26, B_o=5.89, L_o=253.29)

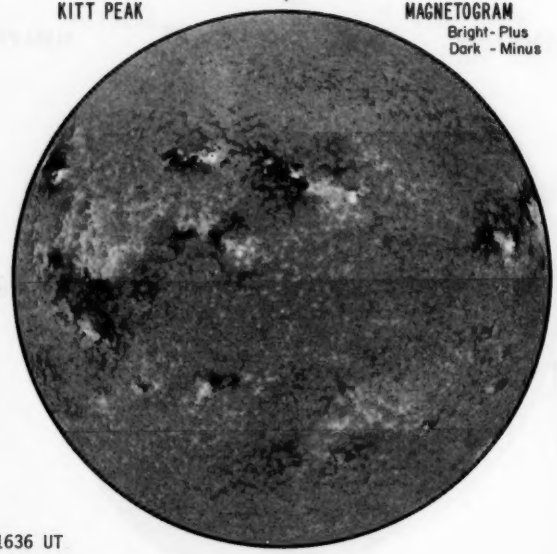
SACRAMENTO PEAK Np CORONA (1.15 $R_\odot$)
5303 Å



1459 UT

Sp

KITT PEAK Np MAGNETOGRAM
Bright - Plus
Dark - Minus



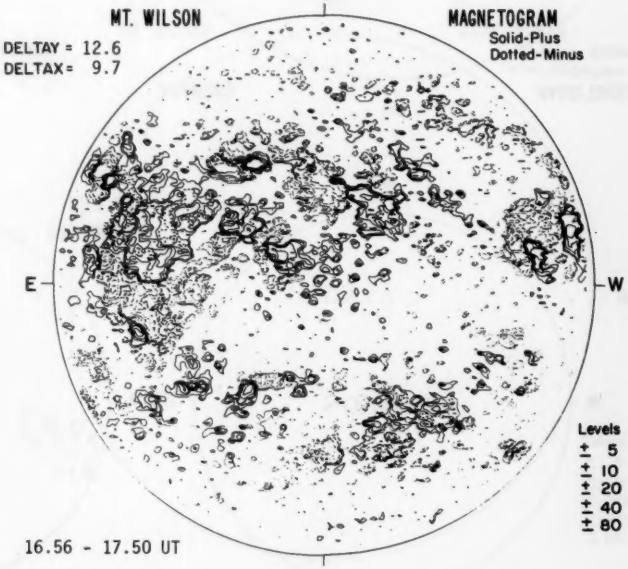
1636 UT

Sp

Np

MT. WILSON MAGNETOGRAM
Solid-Plus
Dotted-Minus

DELTAY = 12.6
DELTAX = 9.7



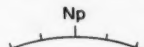
16.56 - 17.50 UT

Sp

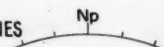
15

BOULDER Np Hα

BOULDER Np

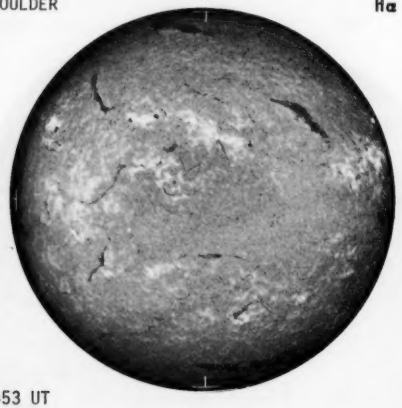


SUNSPOTS HALE OBSERVATORIES Np



CALCIUM REPORT

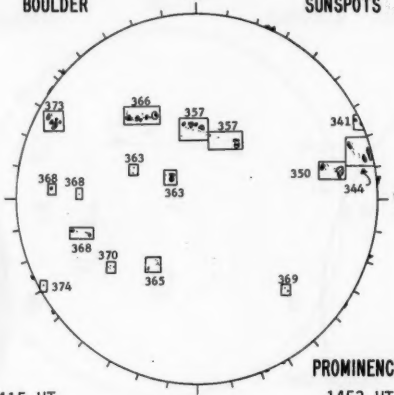
BOULDER Np Hα



E W

1453 UT Sp

BOULDER Np SUNSPOTS

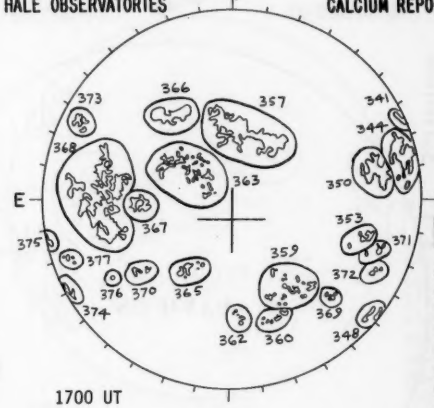


E W

1415 UT Sp

PROMINENCES 1453 UT

HALE OBSERVATORIES Np CALCIUM REPORT



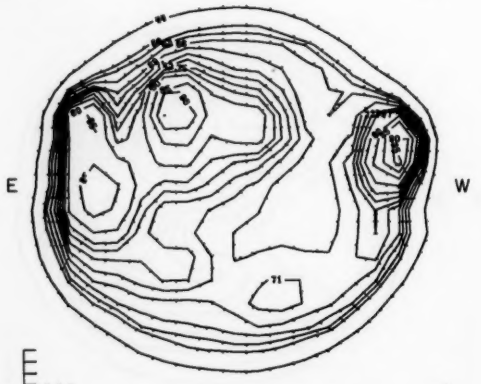
E W

1700 UT Sp

V GOOD

41- 1000-2.5
44- 5000-3.0
50- 3000-3.0
57- 5000-3.5
63- 2700-2.5
65- 0600-3.5
66- 1800-4.0
68- 8500-3.0
69- 0300-2.5
70- 0300-3.0
73- 1200-3.5

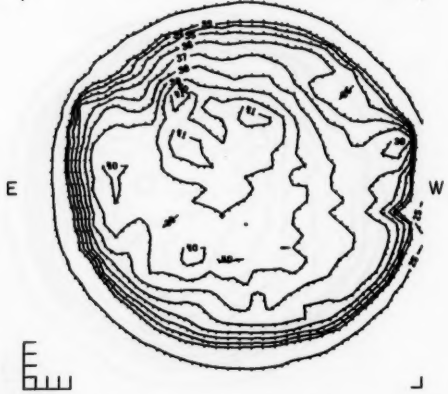
NOSC LA POSTA Np 2.0 CM



E W

1656 UT Sp Ant. Temp. Unit 100° K

NOSC LA POSTA Np 8.6 MM



E W

1601 UT Sp Ant. Temp. Unit 100° K

STANFORD Np

MAGNETOGRAM
Solid - Plus; zero level
Dashed - Minus

E NO DATA W

Levels
0 μT
± 50
±100
±200
•
•
•

Sp

79 Oct 79

OCTOBER 16, 1979 (P=26.23, B_o=5.82, L_o=240.10)

SACRAMENTO PEAK Np CORONA (1.15 $R_\odot$)
5303 Å

E NO DATA W

Sp

KITT PEAK Np MAGNETOGRAM
Bright-Plus
Dark - Minus

E W

1434 UT

Sp

MT. WILSON Np MAGNETOGRAM
Solid-Plus
Dotted-Minus
DELTAY =
DELTAX =

E NO DATA W

Levels
+ 5
+ + 10
+ + + 20
+ + + + 40
+ + + + + 80

Sp

16

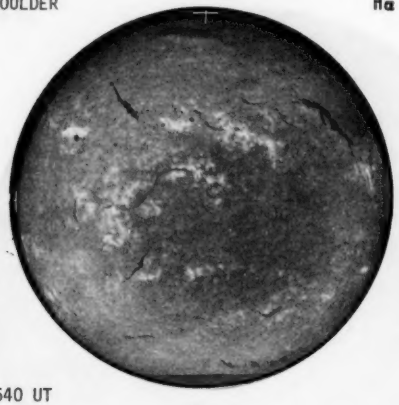
BOULDER Np Hα

BOULDER Np

SUNSPOTS HALE OBSERVATORIES Np CALCIUM REPORT

16

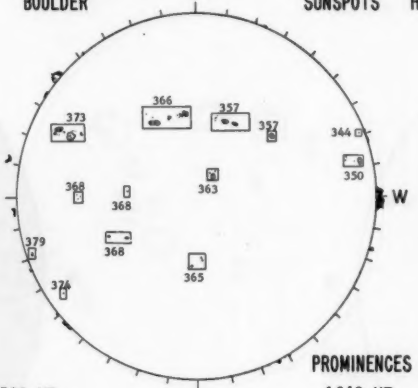
BOULDER Np Hα



E W

1640 UT Sp

BOULDER Np SUNSPOTS

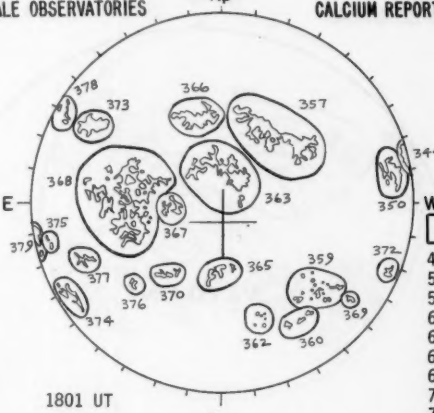


E W

PROMINENCES

1530 UT 1640 UT Sp

HALE OBSERVATORIES Np CALCIUM REPORT



E W

1801 UT Sp

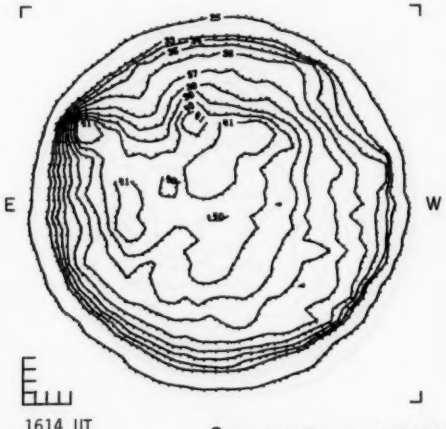
GOOD	
44- 2500-2.5	
50- 3000-3.0	
57- 5000-3.5	
63- 2700-2.5	
65- 0700-3.0	
66- 1800-2.5	
68- 8500-3.0	
70- 0400-2.5	
72- 1000-3.5	
73- 2000-4.5	
74- 1300-2.5	
76- 0200-2.5	
79- 2000-2.5	

NOSC LA POSTA Np 2.0 CM

E W

1949 UT Sp Ant. Temp. Unit 100° K

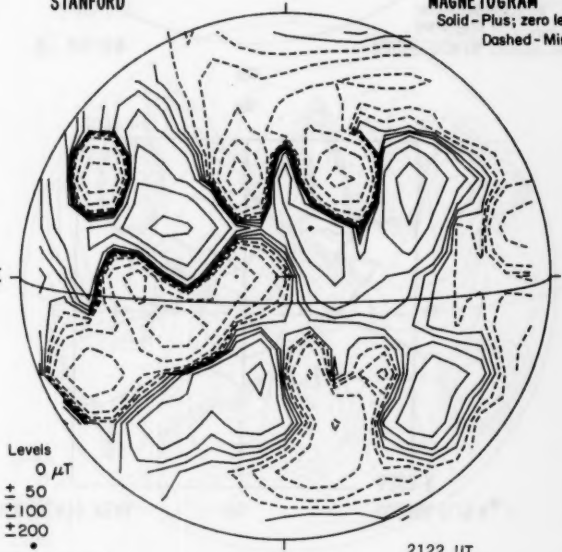
NOSC LA POSTA Np 8.6 MM



E W

1614 UT Sp Ant. Temp. Unit 100° K

STANFORD Np



E W

Levels
0 μT
± 50
±100
±200
• • •

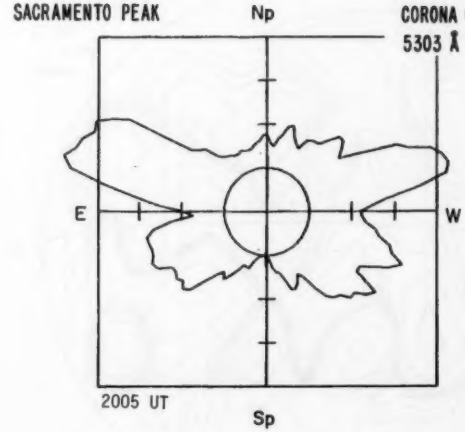
2122 UT Sp

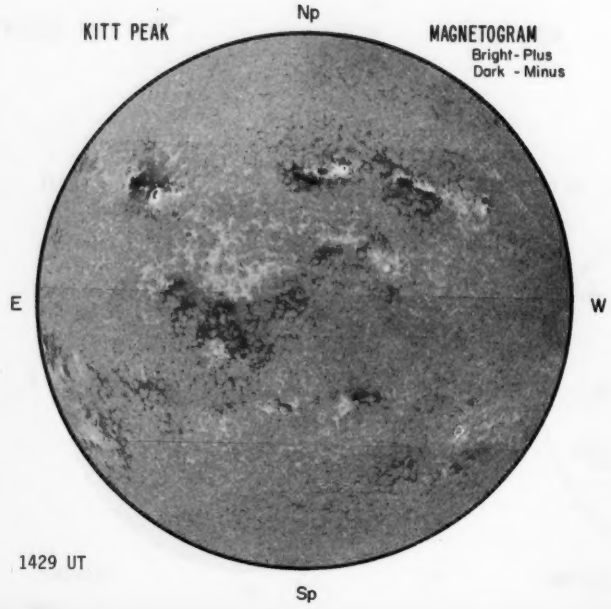
MAGNETOGRAM
Solid - Plus; zero level
Dashed - Minus

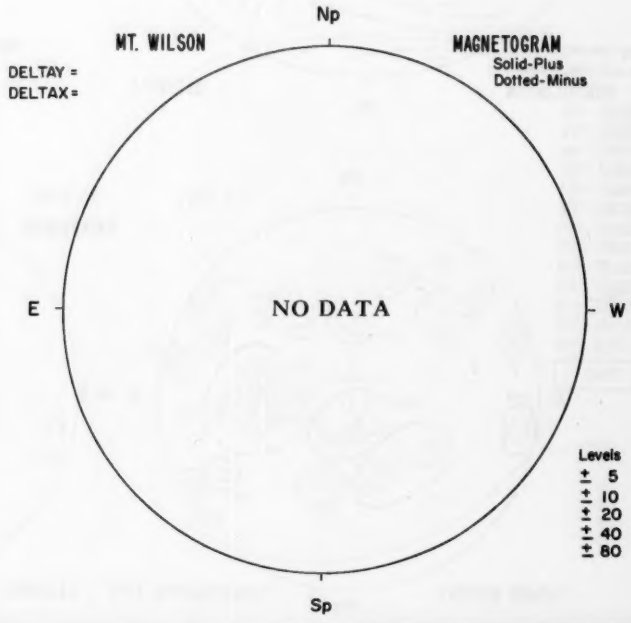
81
Oct 79

OCTOBER 17, 1979 (P = 26.19, B_o = 5.74, L_o = 226.91)

SACRAMENTO PEAK







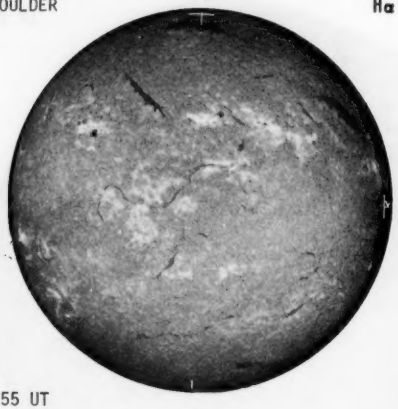
17

Sp

Sp

17

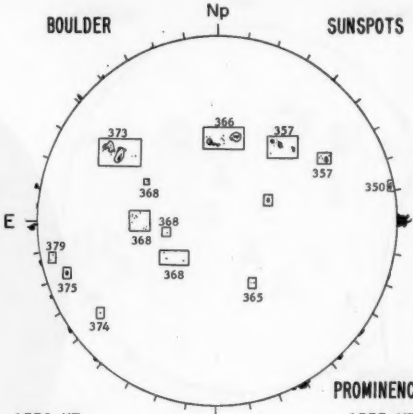
BOULDER Np Hα



E W

1555 UT Sp

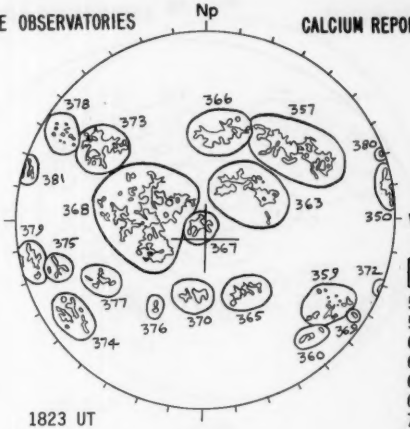
BOULDER Np SUNSPOTS



E W

1550 UT Sp PROMINENCES 1555 UT

HALE OBSERVATORIES Np CALCIUM REPORT

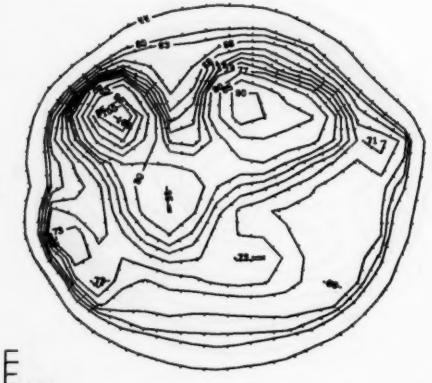


E W

1823 UT Sp

FAIR	
50- 3000-2.5	
57- 5500-3.5	
63- 2500-3.0	
65- 0800-3.0	
66- 2500-3.5	
68- 8500-3.0	
70- 0600-2.5	
72- 0800-3.0	
73- 3300-3.5	
74- 1800-3.0	
79- 3000-4.0	

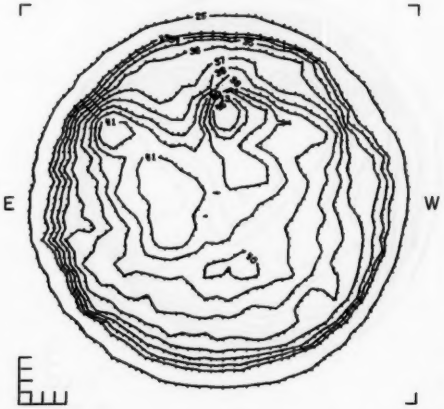
NOSC LA POSTA Np 2.0 CM



E W

1733 UT Sp Ant. Temp. Unit 100° K

NOSC LA POSTA Np 8.6 MM



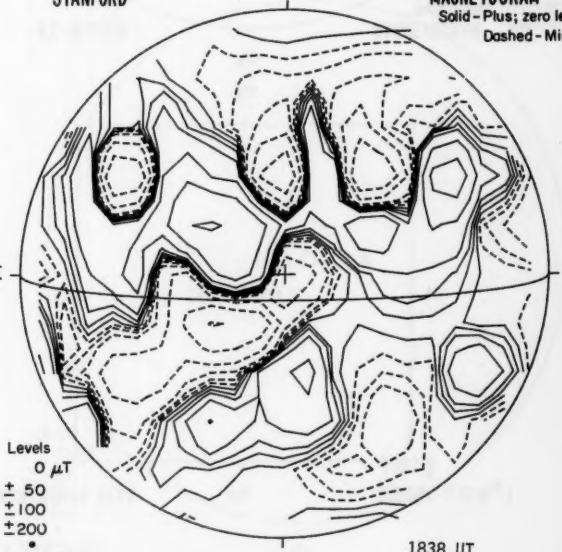
E W

1635 UT Sp Ant. Temp. Unit 100° K

STANFORD Np MAGNETOGRAM

Solid - Plus; zero level

Dashed - Minus



E W

Levels

0 μT

± 50

±100

±200

1838 UT Sp

83

Oct 79

OCTOBER 18, 1979 (P = 26.14, B_o = 5.67, L_o = 213.72)

SACRAMENTO PEAK Np CORONA (1.15 $R_\odot$)
5303 Å

E NO DATA W

Sp

KITT PEAK Np MAGNETOGRAM
Bright - Plus
Dark - Minus

E W

1646 UT

Sp

MT. WILSON Np MAGNETOGRAM
Solid-Plus
Dotted-Minus

DELTAY =
DELTAX =

E NO DATA W

Sp

Levels
± 5
± 10
± 20
± 40
± 80

18

BOULDER Np Hα

BOULDER Np

SUNSPOTS HALE OBSERVATORIES Np CALCIUM REPORT

Sp

Sp

18

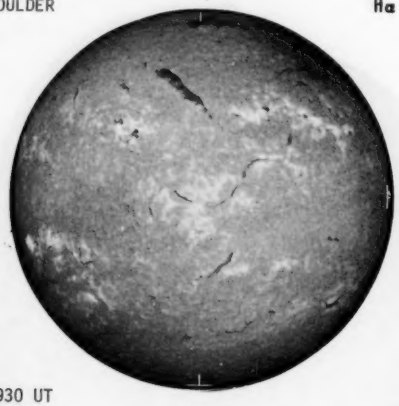
BOULDER

Np

Hα

E

W



1930 UT

Sp

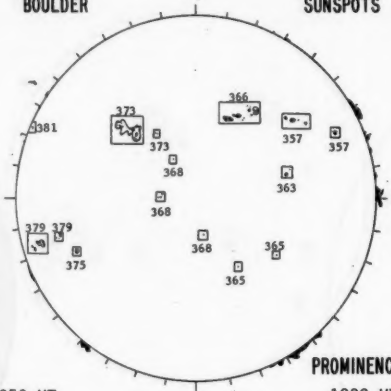
BOULDER

Np

SUNSPOTS

E

W



PROMINENCES

1950 UT

1930 UT

Sp

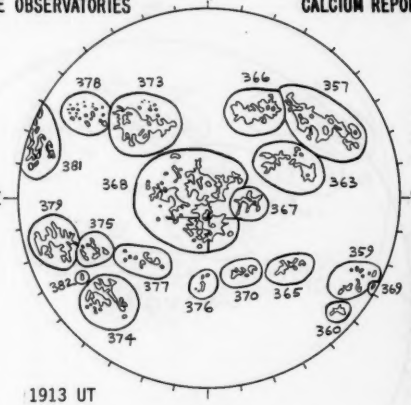
HALE OBSERVATORIES

Np

CALCIUM REPORT

E

W



1913 UT

Sp

GOOD

57- 5600-3.5
63- 2500-2.5
65- 0800-3.0
66- 3200-3.5
68- 8200-3.0
70- 0600-2.5
73- 4000-3.5
74- 2700-3.0
79- 3900-3.5
81- 3000-1.5
82- 0100-2.5

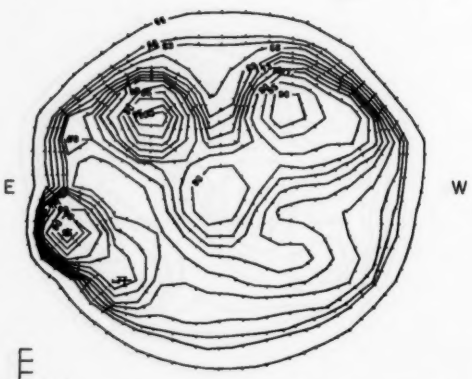
NOSC LA POSTA

Np

2.0 CM

E

W



1645 UT

Sp

Ant. Temp. Unit 100° K

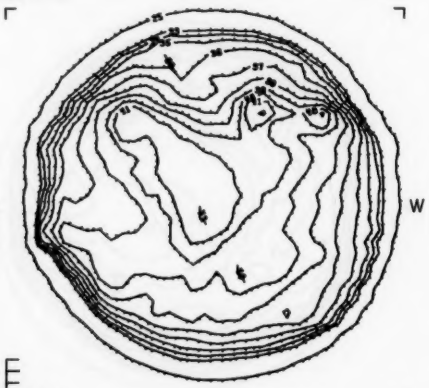
NOSC LA POSTA

Np

8.6 MM

E

W



1536 UT

Sp

Ant. Temp. Unit 100° K

STANFORD

Np

MAGNETOGRAM

Solid - Plus; zero level

Dashed - Minus

E

W

NO DATA

Levels

0 μT

± 50

±100

±200

Sp

85

Oct 79

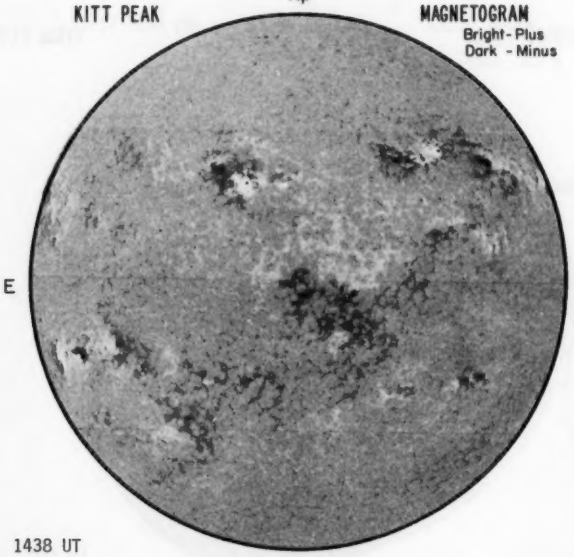
OCTOBER 19, 1979 (P = 26.08, B_o = 5.59, L_o = 200.53)

SACRAMENTO PEAK Np CORONA (1.15 $R_\odot$)
5303 Å

E NO DATA W

Sp

KITT PEAK Np MAGNETOGRAM
Bright - Plus
Dark - Minus



E W

1438 UT

Sp

MT. WILSON Np MAGNETOGRAM
Solid-Plus
Dotted-Minus

DELTAY =
DELTAX =

E NO DATA W

Levels
± 5
± 10
± 20
± 40
± 80

Sp

19

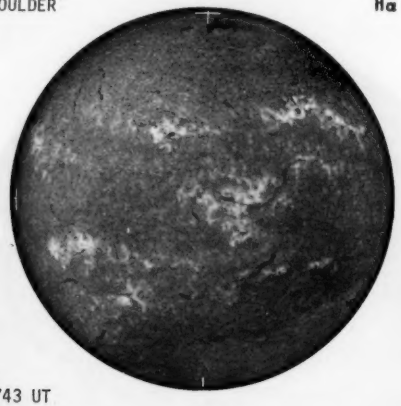
BOULDER Np Hα

BOULDER Np

SUNSPOTS HALE OBSERVATORIES Np CALCIUM REPORT

19

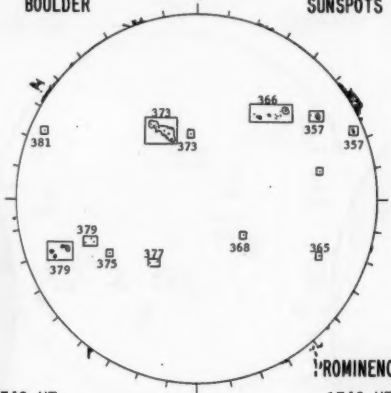
BOULDER Np Hα



E W

1743 UT Sp

BOULDER Np SUNSPOTS



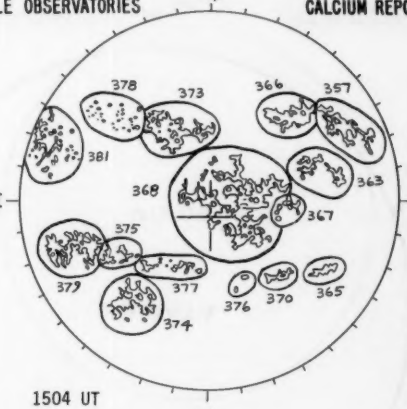
E W

1743 UT Sp

PROMINENCES

1743 UT

HALE OBSERVATORIES Np CALCIUM REPORT

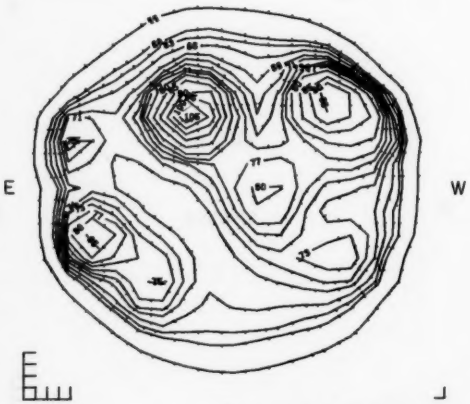


E W

1504 UT Sp

GOOD	
57- 4700-4.0	
65- 0700-2.5	
66- 3700-3.0	
68- 8500-2.5	
73- 4100-3.5	
74- 3100-3.0	
79- 4700-3.5	
81- 3000-2.0	

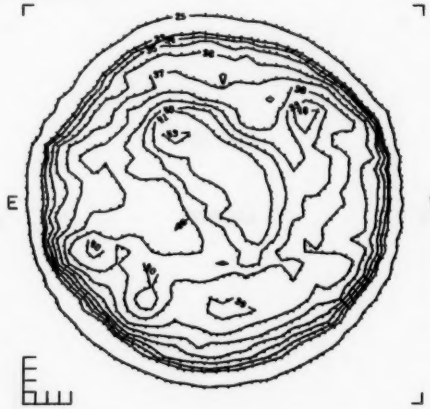
NOSC LA POSTA Np 2.0 CM



E W

1719 UT Sp Ant. Temp. Unit 100° K

NOSC LA POSTA Np 8.6 MM

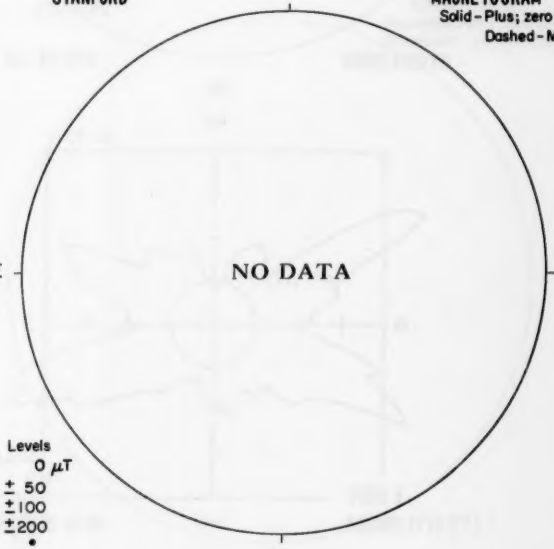


E W

1756 UT Sp Ant. Temp. Unit 100° K

STANFORD Np

MAGNETOGRAM
Solid - Plus; zero level
Dashed - Minus



E W

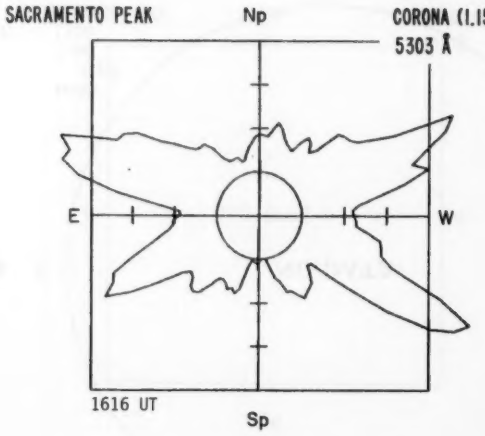
Sp

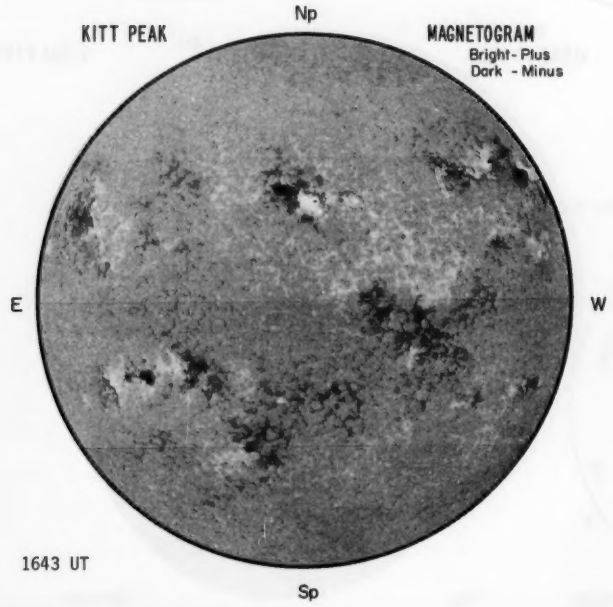
Levels
0 μT
± 50
±100
±200

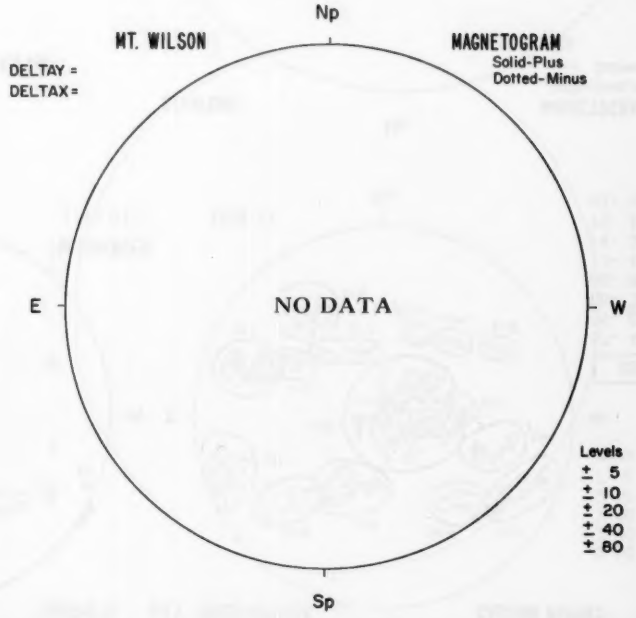
87 Oct 79

OCTOBER 20, 1979 (P = 26.02, B_o = 5.50, L_o = 187.34)

SACRAMENTO PEAK







20

BIG BEAR

Np

Hα

BOULDER

Np

SUNSPOTS

HALE OBSERVATORIES

Np

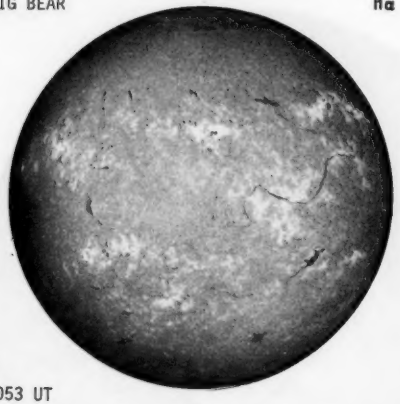
CALCIUM REPORT

20

BIG BEAR

Np

Hα



E W

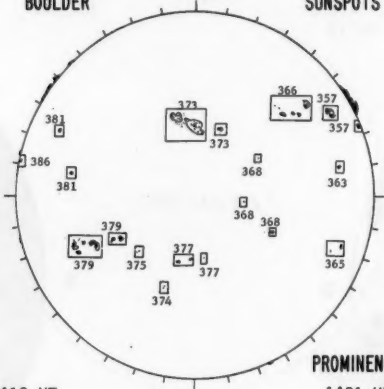
Sp

2053 UT

BOULDER

Np

SUNSPOTS



E W

Sp

1410 UT

PROMINENCES

1401 UT

HALE OBSERVATORIES

Np

CALCIUM REPORT

NO DATA

E W

Sp

NOSC LA POSTA

Np

2.0 CM

NO DATA

SCHEDULE

E W

---- UT

Sp

Ant. Temp. Unit 100° K

NOSC LA POSTA

Np

8.6 MM

NO DATA

SCHEDULE

E W

---- UT

Sp

Ant. Temp. Unit 100° K

STANFORD

Np

MAGNETOGRAM

Solid - Plus; zero level

Dashed - Minus

NO DATA

E W

Levels

0 μT

± 50

±100

±200

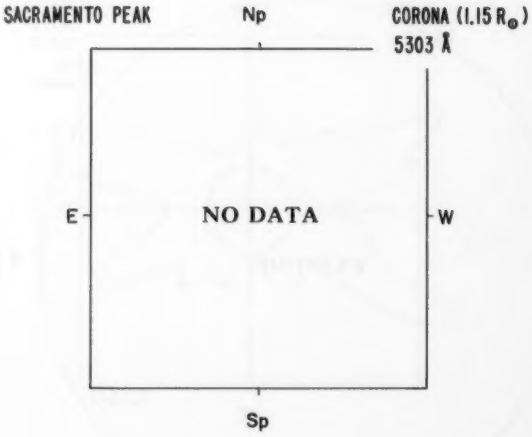
Sp

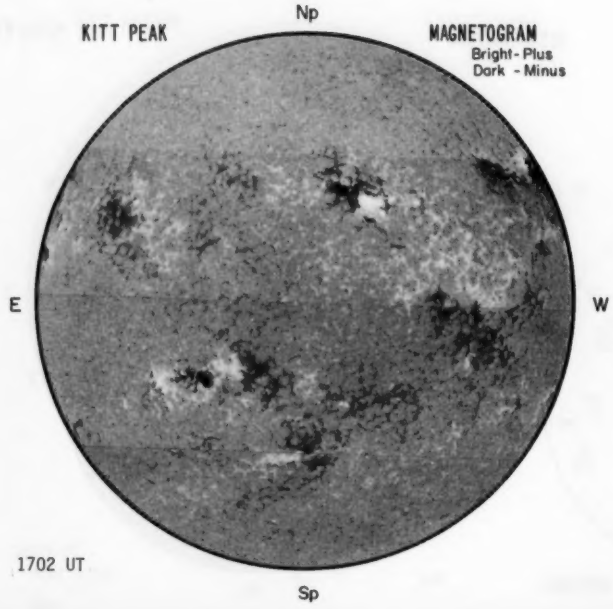
89

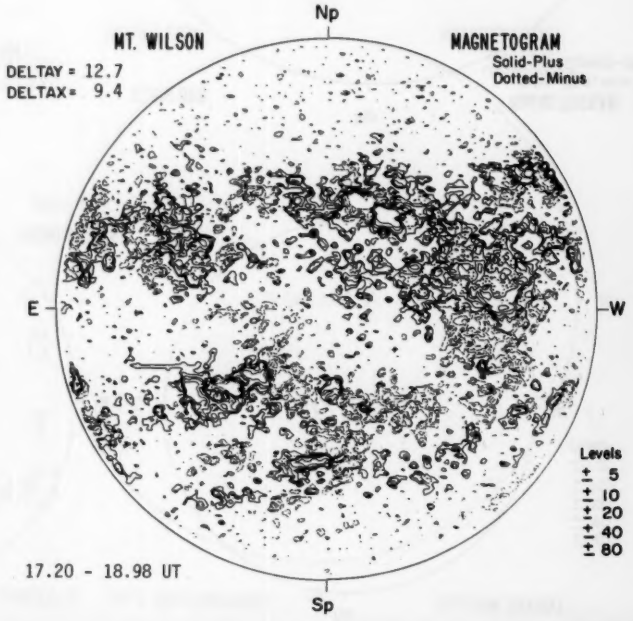
Oct 79

OCTOBER 21, 1979 (P = 25.94, B_o = 5.42, L_o = 174.15)

SACRAMENTO PEAK



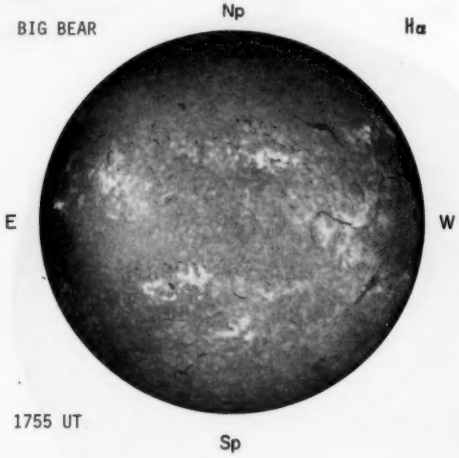




21

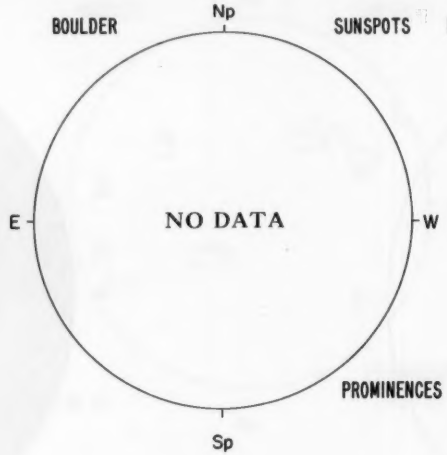
21

BIG BEAR Hα



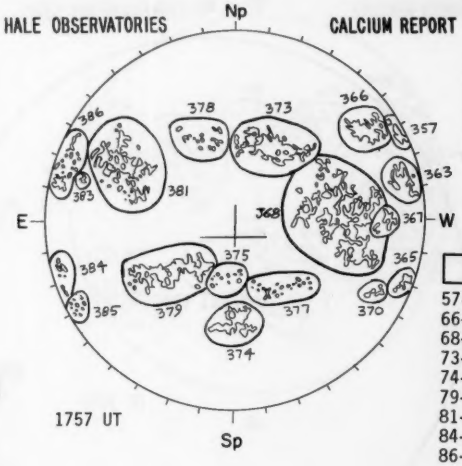
1755 UT

BOULDER SUNSPOTS



PROMINENCES

HALE OBSERVATORIES CALCIUM REPORT



1757 UT

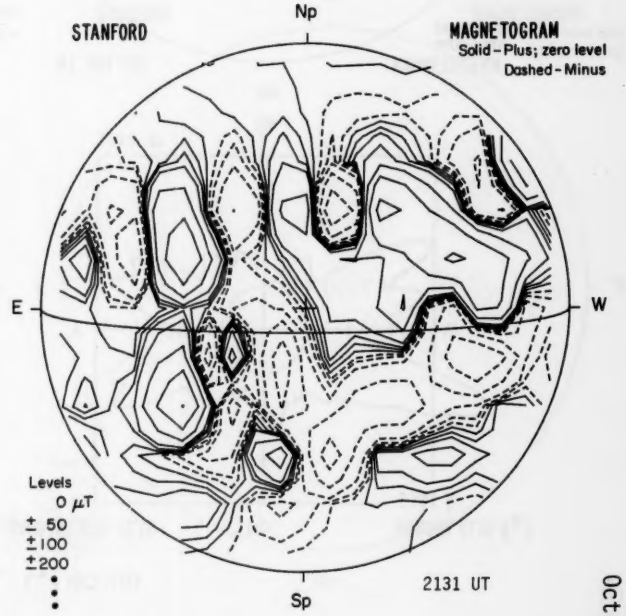
FAIR	
57- 2000-3.0	
66- 3700-3.0	
68- 8500-2.5	
73- 4600-3.5	
74- 2600-3.0	
79- 5000-3.5	
81- 4000-2.5	
84- 2000-2.5	
86- 2800-3.5	

NOSC LA POSTA 2.0 CM

NOSC LA POSTA 8.6 MM

STANFORD MAGNETOGRAM

Solid - Plus; zero level
Dashed - Minus

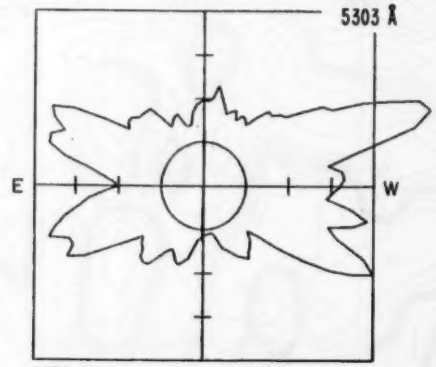


2131 UT

91
Oct 79

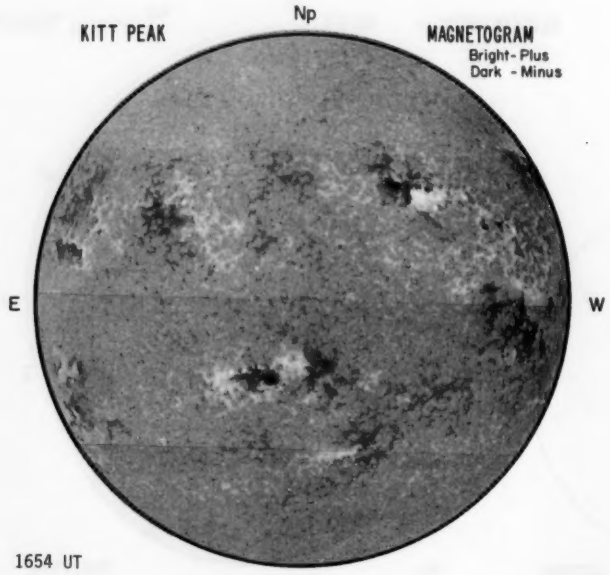
OCTOBER 22, 1979 (P = 25.86, B_o = 5.34, L_o = 160.96)

SACRAMENTO PEAK Np CORONA (1.15 $R_\odot$)
5303 Å



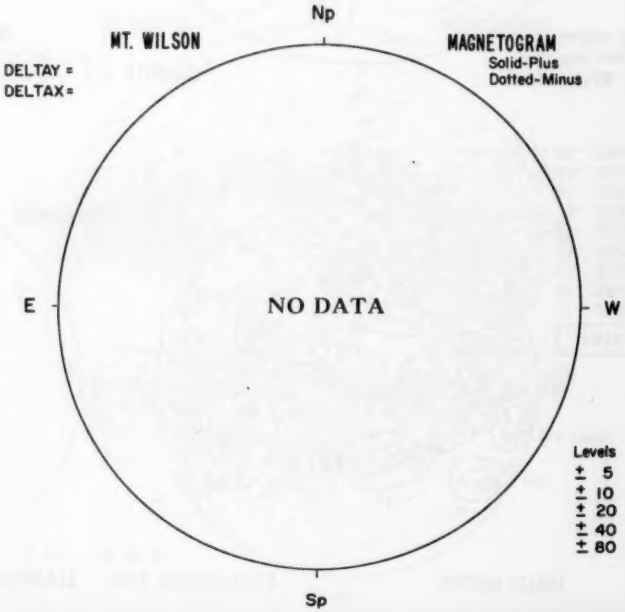
1632 UT
Sp

KITT PEAK Np MAGNETOGRAM
Bright - Plus
Dark - Minus



1654 UT
Sp

MT. WILSON Np MAGNETOGRAM
Solid-Plus
Dotted-Minus
DELTAY =
DELTAX =



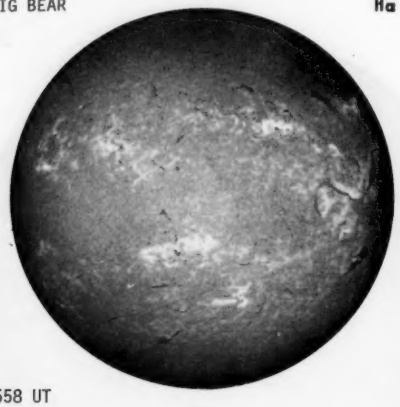
Sp

22

BIG BEAR Np Hα BOULDER Np SUNSPOTS HALE OBSERVATORIES Np CALCIUM REPORT

22

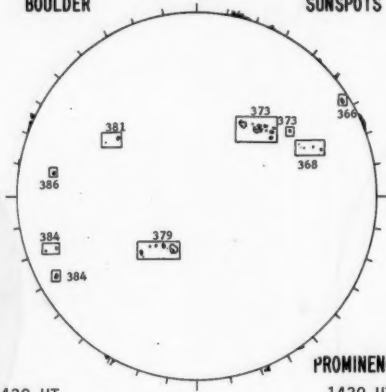
BIG BEAR Np Hα



E W

1558 UT Sp

BOULDER Np SUNSPOTS



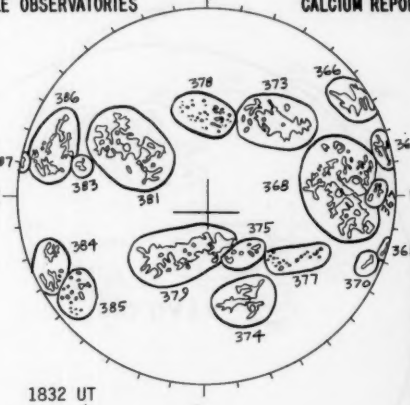
E W

1430 UT Sp

PROMINENCES

1430 UT

HALE OBSERVATORIES Np CALCIUM REPORT

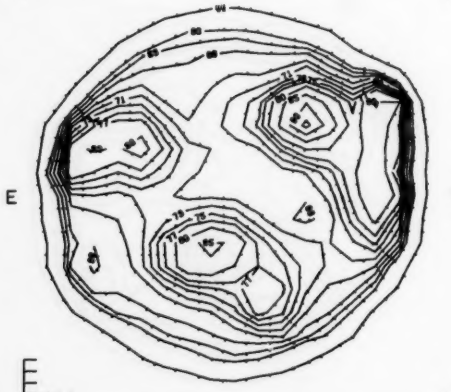


E W

1832 UT Sp

POOR	
65- 0700-3.0	
66- 3700-3.0	
68- 8000-2.5	
73- 5000-3.5	
74- 2200-2.5	
79- 5500-3.0	
81- 4800-2.5	
84- 2000-3.5	
86- 3200-3.0	

NOSC LA POSTA Np 2.0 CM



E W

1630 UT Sp Ant. Temp. Unit 100° K

NOSC LA POSTA Np 8.6 MM

NO DATA

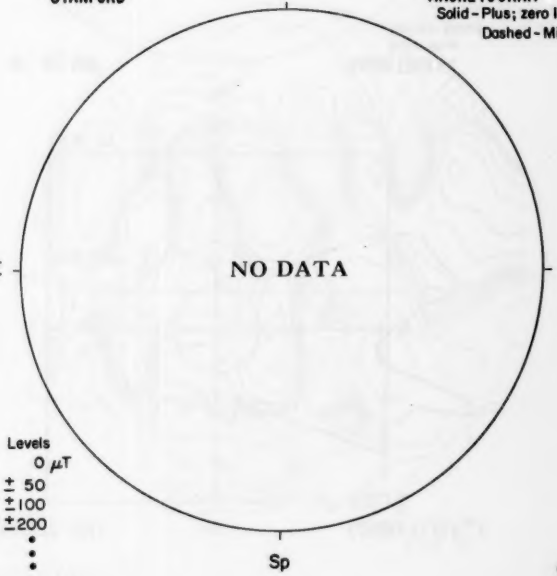
EQUIPMENT

---- UT Sp Ant. Temp. Unit 100° K

STANFORD Np MAGNETOGRAM

Solid - Plus; zero level

Dashed - Minus



E W

Sp

Levels 0 μT

± 50

±100

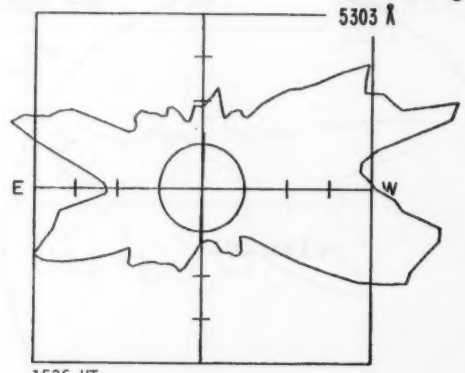
±200

93

Oct 79

OCTOBER 23, 1979 (P = 25.77, B_o = 5.25, L_o = 147.77)

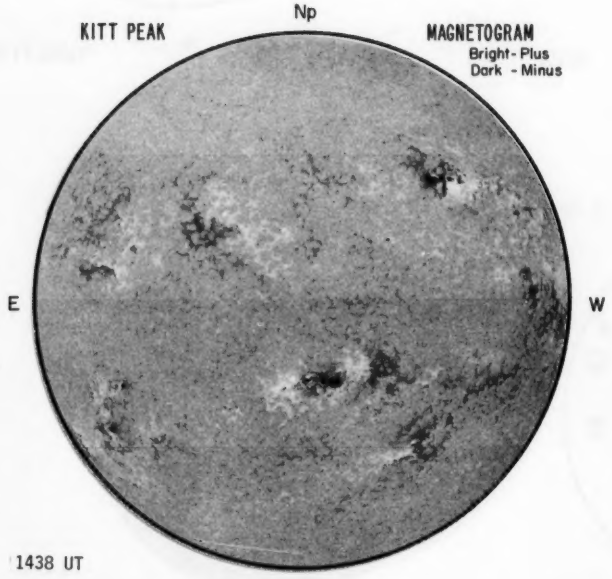
SACRAMENTO PEAK Np CORONA (1.15 $R_\odot$)
5303 Å



1536 UT

Sp

KITT PEAK Np MAGNETOGRAM
Bright - Plus
Dark - Minus

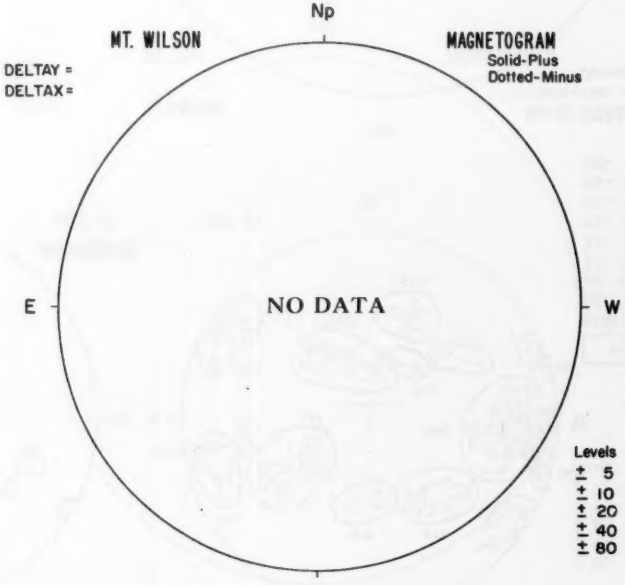


1438 UT

Sp

MT. WILSON Np MAGNETOGRAM
Solid-Plus
Dotted-Minus

DELTAY =
DELTAX =



Levels
+ 5
+ + 10
+ + + 20
+ + + + 40
+ + + + + 80

Sp

23

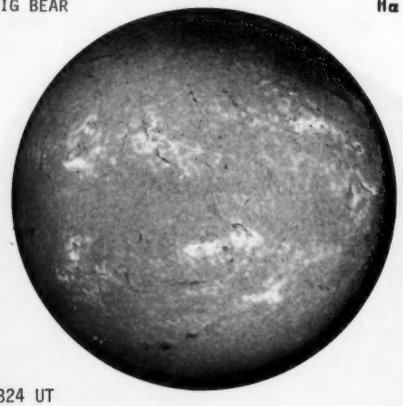
BIG BEAR Np Hα

BOULDER Np

SUNSPOTS HALE OBSERVATORIES Np CALCIUM REPORT

23

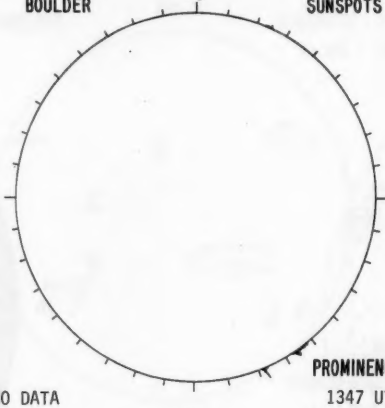
BIG BEAR Np Hα



E W

1824 UT Sp

BOULDER Np SUNSPOTS

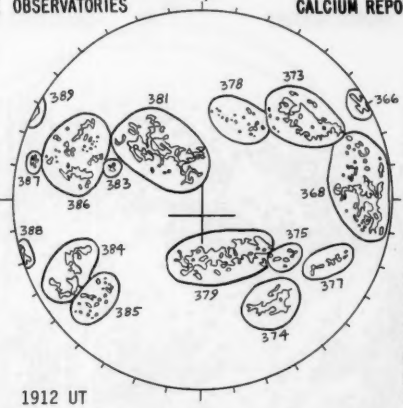


E W

NO DATA PROMINENCES

1347 UT Sp

HALE OBSERVATORIES Np CALCIUM REPORT

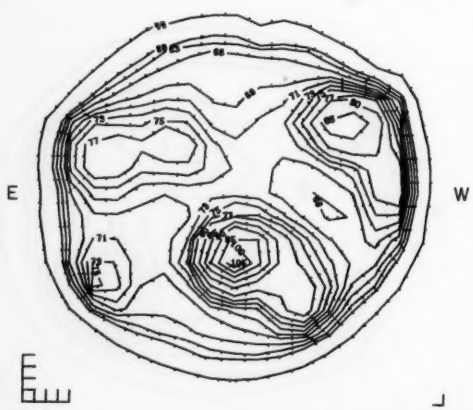


E W

1912 UT Sp

FAIR	
68-	7500-2.0
73-	5000-3.5
74-	2500-3.0
79-	5700-3.5
81-	4100-2.5
84-	3000-3.5
86-	3300-3.0
89-	1000-3.5

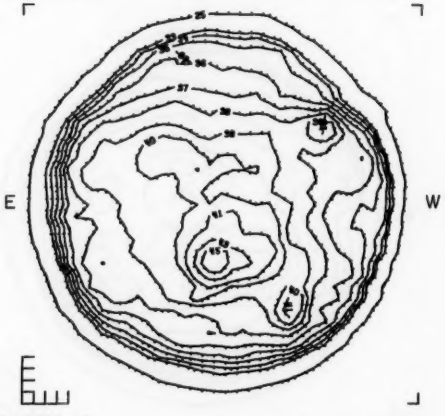
NOSC LA POSTA Np 2.0 CM



E W

1720 UT Sp Ant. Temp. Unit 100° K

NOSC LA POSTA Np 8.6 MM



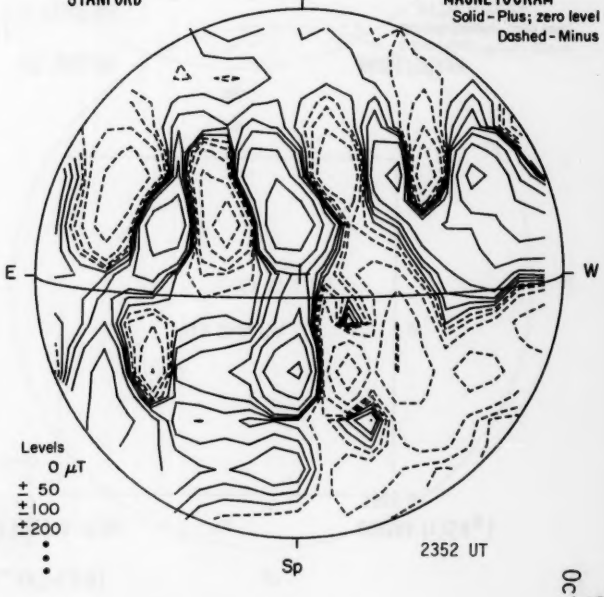
E W

1620 UT Sp Ant. Temp. Unit 100° K

STANFORD Np MAGNETOGRAM

Solid - Plus; zero level

Dashed - Minus



E W

Levels

0 μT

± 50

±100

±200

2352 UT Sp

95

Oct 79

OCTOBER 24, 1979 (P = 25.68, B_o = 5.16, L_o = 134.58)

SACRAMENTO PEAK

Np

CORONA (1.15 $R_\odot$)
5303 Å

E — NO DATA — W

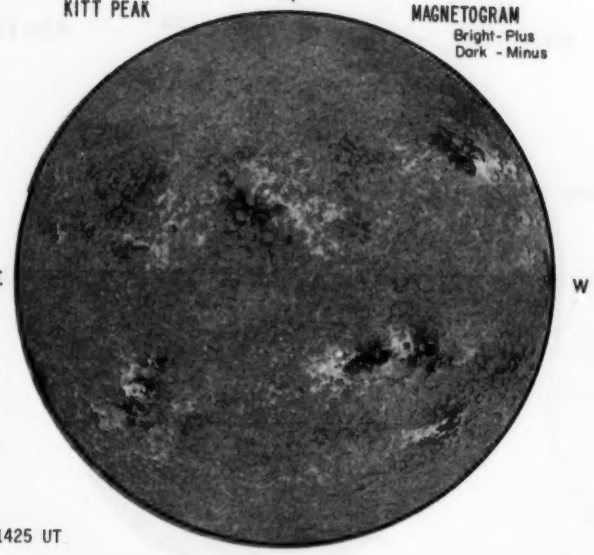
Sp

KITT PEAK

Np

MAGNETOGRAM
Bright - Plus
Dark - Minus

E



W

1425 UT

Sp

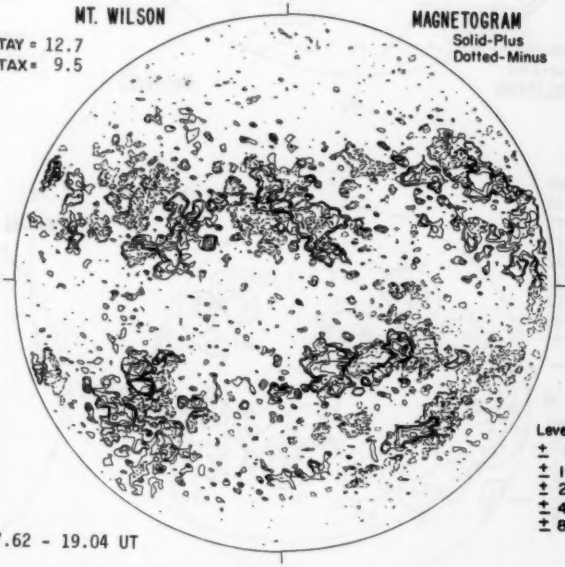
MT. WILSON

Np

MAGNETOGRAM
Solid-Plus
Dotted-Minus

DELTAY = 12.7
DELTAX = 9.5

E



W

Levels
± 5
± 10
± 20
± 40
± 80

17.62 - 19.04 UT

Sp

24

BIG BEAR

Np

Hα

BOULDER

Np

SUNSPOTS HALE OBSERVATORIES

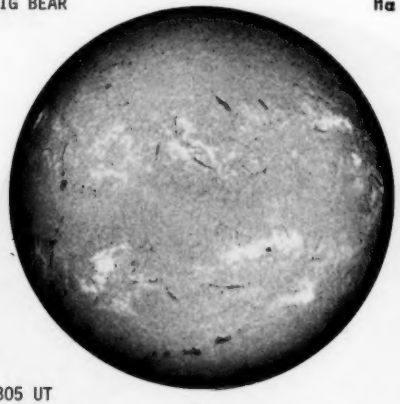
Np

CALCIUM REPORT

Sp

24

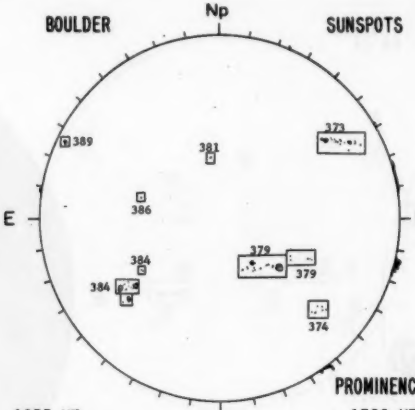
BIG BEAR Np Hα



E W

1805 UT Sp

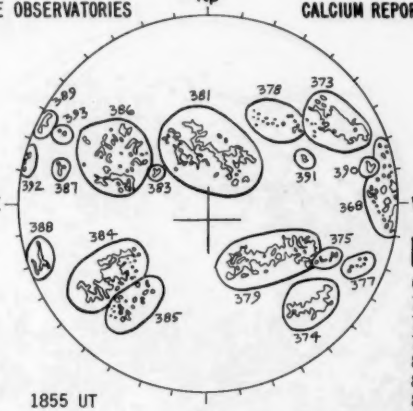
BOULDER Np SUNSPOTS



E W

1355 UT Sp

HALE OBSERVATORIES Np CALCIUM REPORT



E W

1855 UT Sp

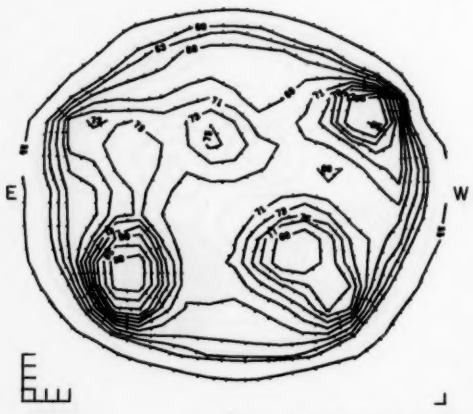
PROMINENCES

1500 UT

FAIR

68- 5100-2.0
73- 5200-4.0
74- 2800-3.0
79- 5600-3.0
81- 4500-2.5
84- 4000-3.5
86- 3200-2.5
89- 1000-3.5
90- 0400-2.5

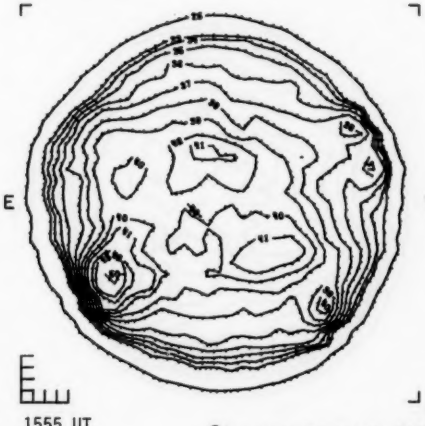
NOSC LA POSTA Np 2.0 CM



E W

1711 UT Sp Ant. Temp. Unit 100° K

NOSC LA POSTA Np 8.6 MM

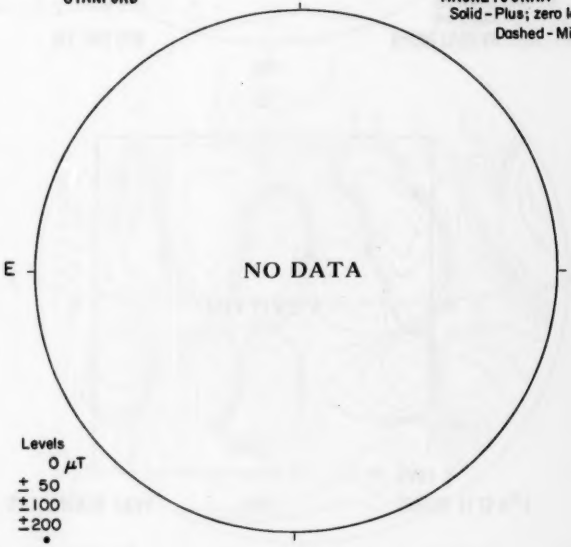


E W

1555 UT Sp Ant. Temp. Unit 100° K

STANFORD Np

MAGNETOGRAM
Solid - Plus; zero level
Dashed - Minus



E W

Levels
0 μT
± 50
±100
±200

Sp

97
Oct 79

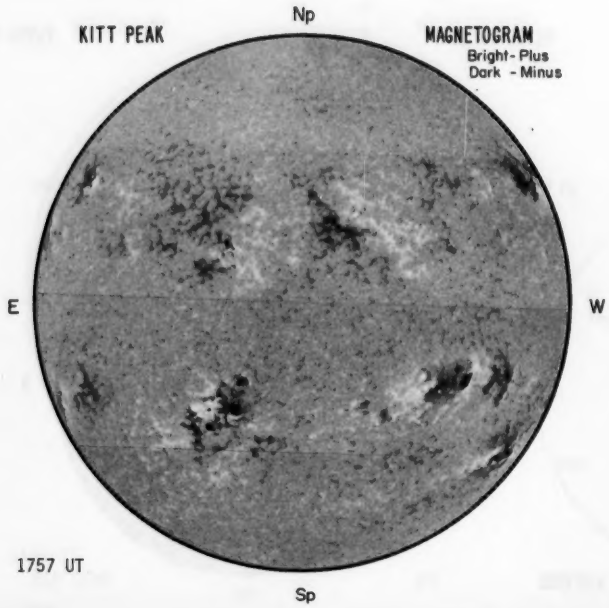
OCTOBER 25, 1979 (P = 25.58, B_o = 5.07, L_o = 121.40)

SACRAMENTO PEAK — Np — CORONA (1.15 $R_\odot$) 5303 Å

E — NO DATA — W

Sp

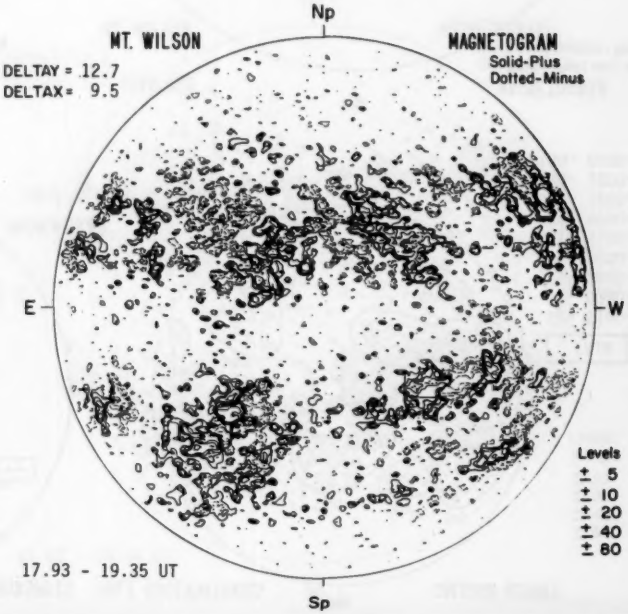
KITT PEAK — MAGNETOGRAM Bright - Plus Dark - Minus



1757 UT

MT. WILSON — MAGNETOGRAM Solid-Plus Dotted-Minus

DELTAY = 12.7
DELTAX = 9.5



17.93 - 19.35 UT

25

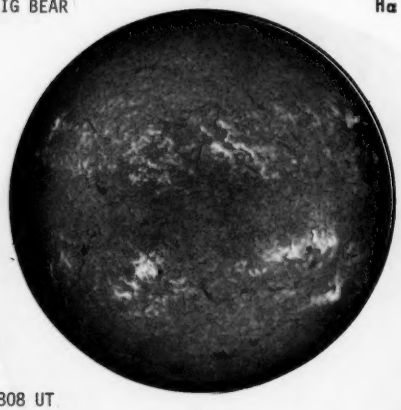
BOULDER

SUNSPOTS — HALE OBSERVATORIES

CALCIUM REPORT

25

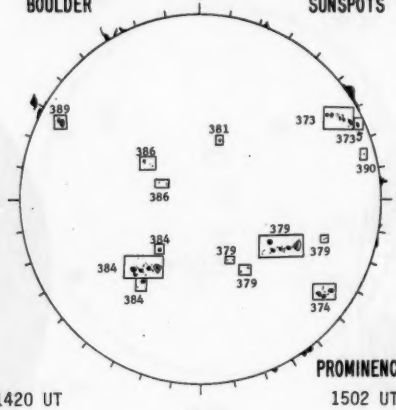
BIG BEAR Np Hα



E W

1808 UT Sp

BOULDER Np SUNSPOTS



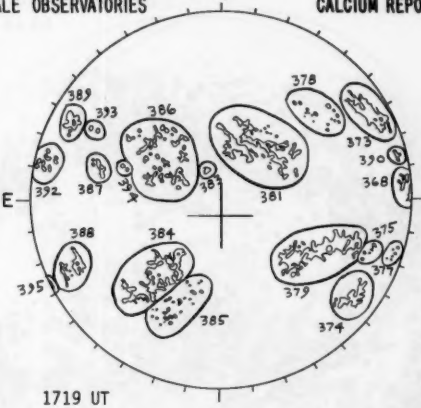
E W

1420 UT Sp

PROMINENCES

1502 UT

HALE OBSERVATORIES Np CALCIUM REPORT



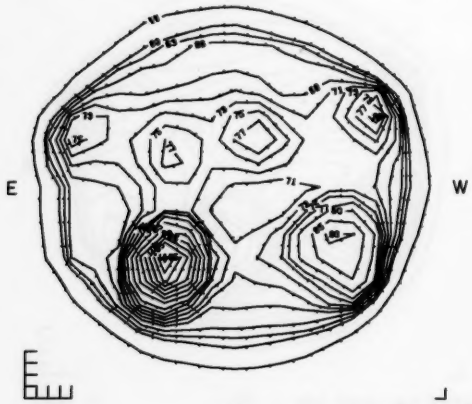
E W

1719 UT Sp

FAIR	

73- 4600-3.5
74- 2400-3.0
79- 5600-3.5
81- 4500-2.5
84- 4400-4.0
86- 3200-2.0
88- 1800-2.5
89- 1100-3.5

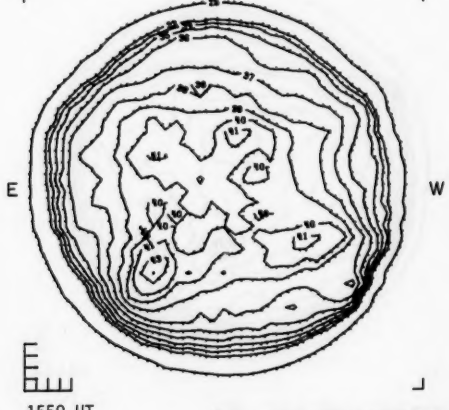
NOSC LA POSTA Np 2.0 CM



E W

1657 UT Sp Ant. Temp. Unit 100° K

NOSC LA POSTA Np 8.6 MM

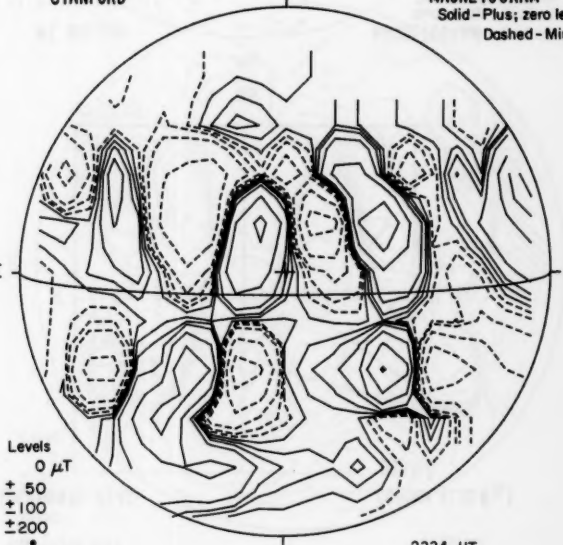


E W

1550 UT Sp Ant. Temp. Unit 100° K

STANFORD Np MAGNETOGRAM

Solid - Plus; zero level
Dashed - Minus



E W

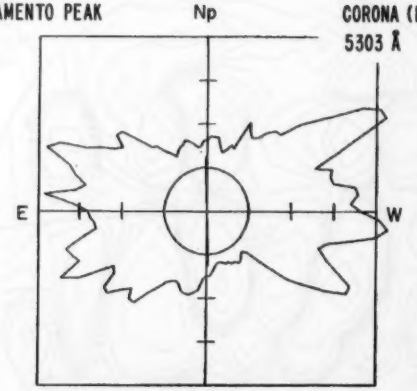
Levels
0 μT
± 50
±100
±200

2334 UT Sp

99
Oct 79

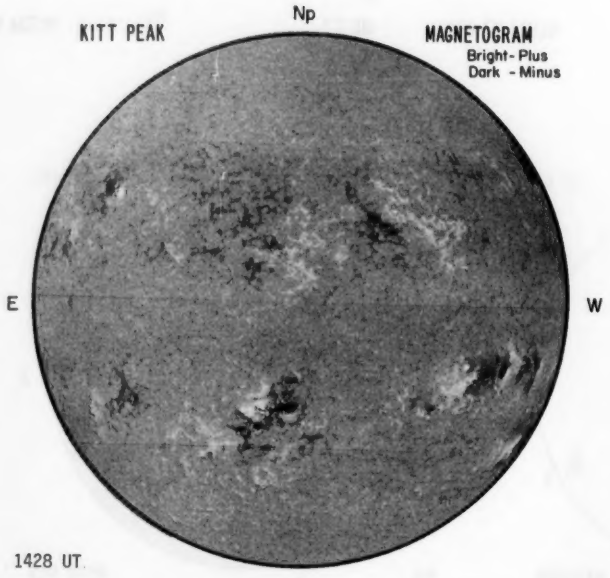
OCTOBER 26, 1979 (P = 25.46, B_o = 4.98, L_o = 108.21)

SACRAMENTO PEAK



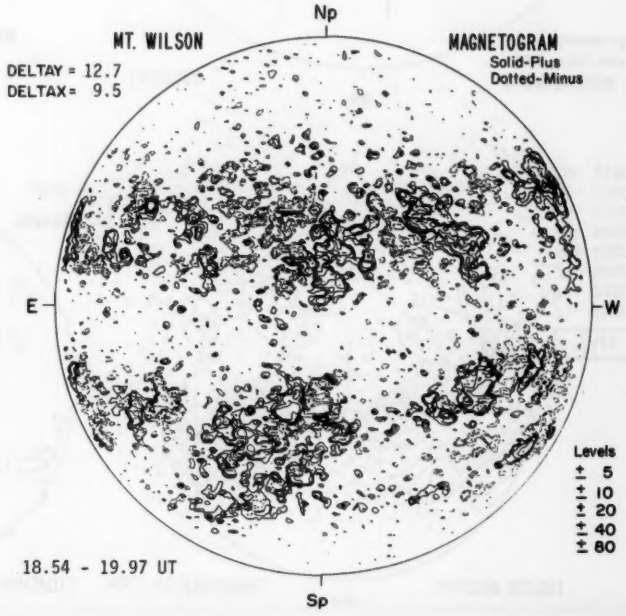
2218 UT

KITT PEAK



1428 UT

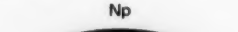
MT. WILSON



18.54 - 19.97 UT

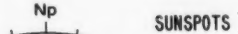
26

BIG BEAR



Hα

BOULDER

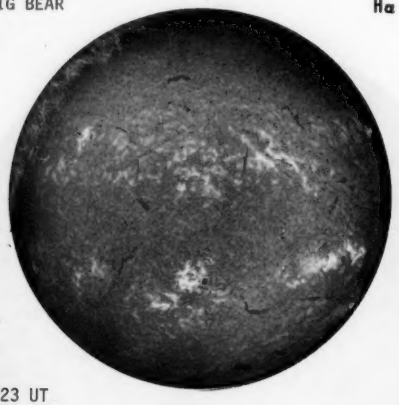


SUNSPOTS

HALE OBSERVATORIES

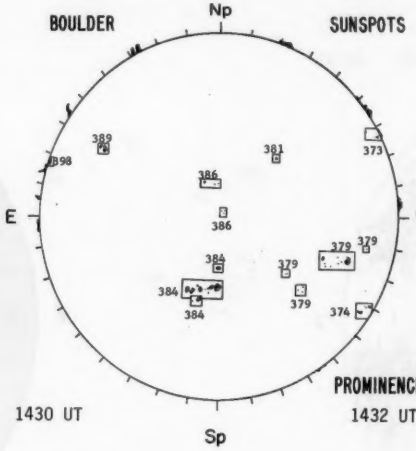
CALCIUM REPORT

BIG BEAR Hα



1823 UT

BOULDER SUNSPOTS

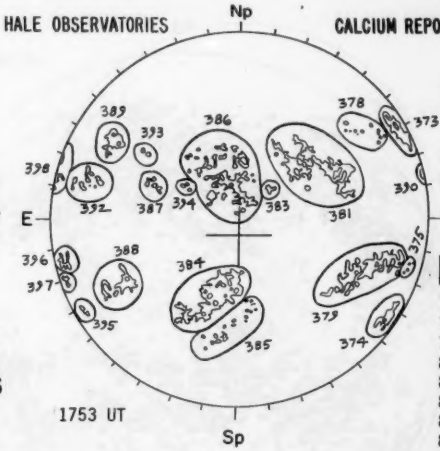


1430 UT

PROMINENCES

1432 UT

HALE OBSERVATORIES CALCIUM REPORT

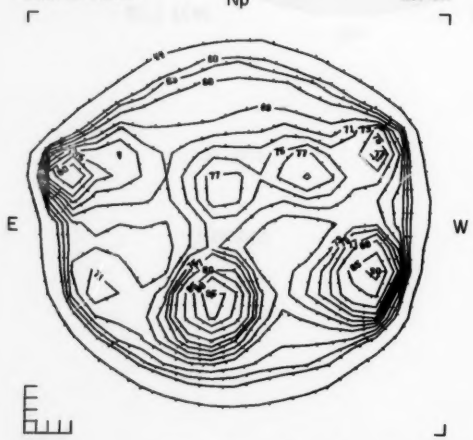


1753 UT

FAIR

73- 4300-3.5
74- 2200-3.0
79- 5600-3.0
81- 4700-2.5
84- 5600-3.5
86- 3500-2.0
88- 2000-3.0
89- 1700-3.0
92- 1000-2.5
98- 3500-3.5

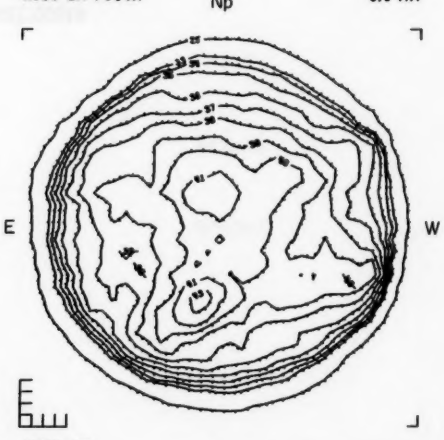
NOSC LA POSTA 2.0 CM



1837 UT

Ant. Temp. Unit 100° K

NOSC LA POSTA 8.6 MM

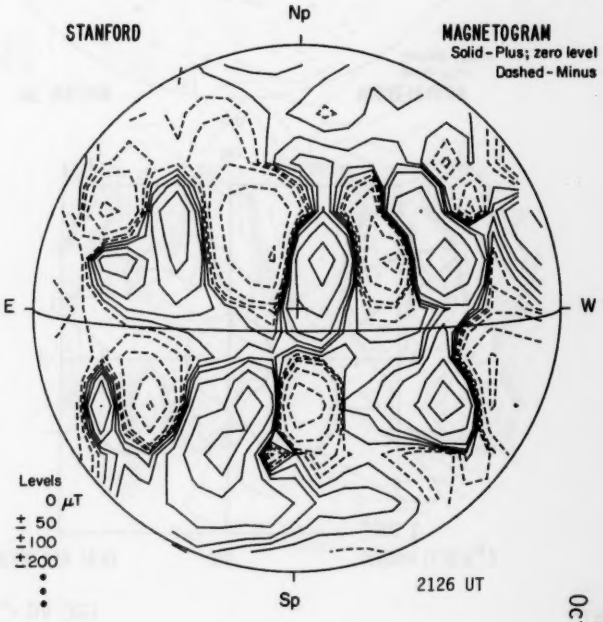


1731 UT

Ant. Temp. Unit 100° K

STANFORD MAGNETOGRAM

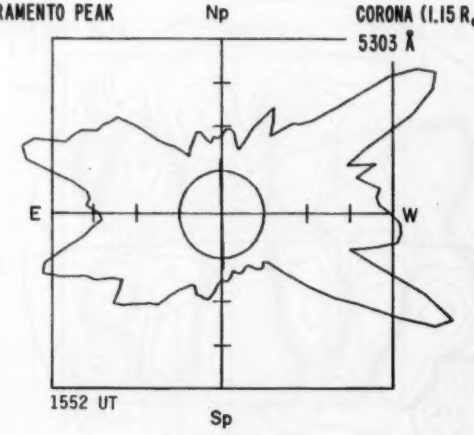
Solid - Plus; zero level
Dashed - Minus



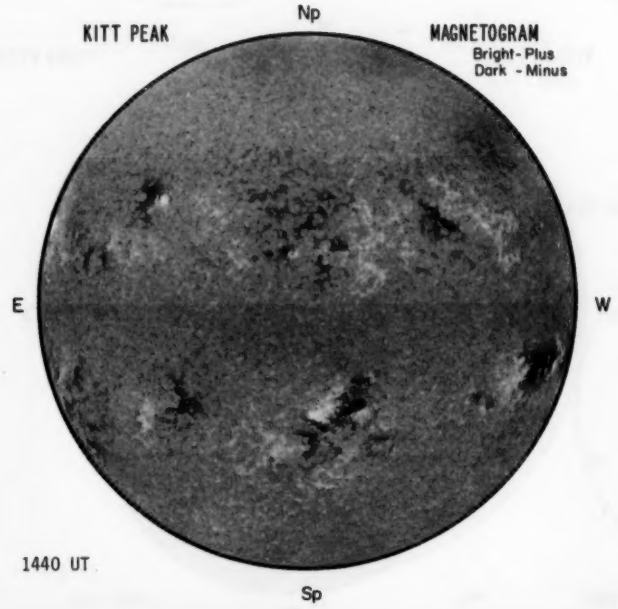
2126 UT

OCTOBER 27, 1979 (P = 25.35, B_o = 4.89, L_o = 95.02)

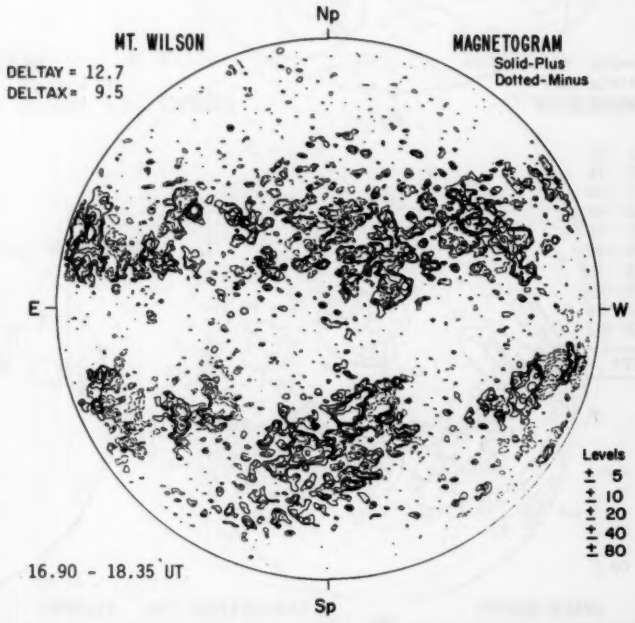
SACRAMENTO PEAK



1552 UT



1440 UT



16.90 - 18.35 UT

27

BIG BEAR

Hα

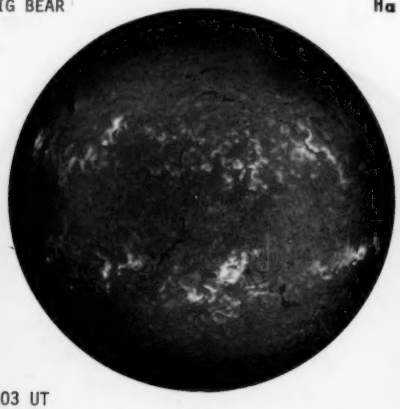
BOULDER

SUNSPOTS HALE OBSERVATORIES

CALCIUM REPORT

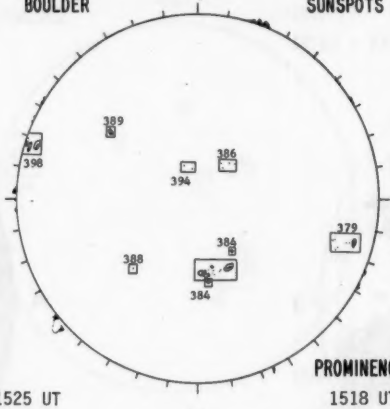
27

BIG BEAR Hα



1903 UT

BOULDER SUNSPOTS

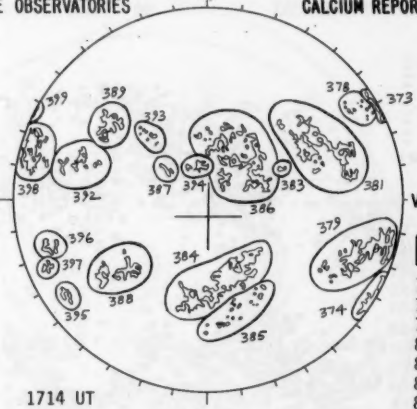


1525 UT

PROMINENCES

1518 UT

HALE OBSERVATORIES CALCIUM REPORT



1714 UT

FAIR

73- 2700-3.0
74- 1900-3.0
79- 6000-3.0
81- 4700-2.5
84- 6000-3.5
86- 3500-2.0
88- 2000-3.5
89- 1700-3.0
98- 4500-4.0

NOSC LA POSTA Np 2.0 CM

NO DATA

E SCHEDULE W

---- UT Sp Ant. Temp. Unit 100° K

NOSC LA POSTA Np 8.6 MM

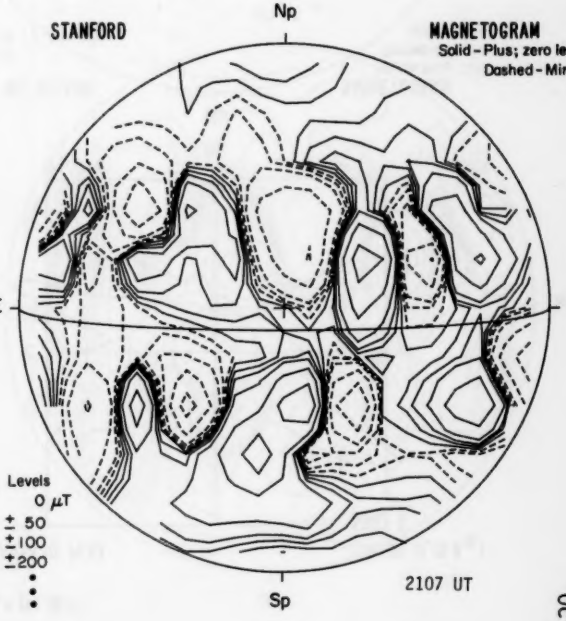
NO DATA

E SCHEDULE W

---- UT Sp Ant. Temp. Unit 100° K

STANFORD MAGNETOGRAM

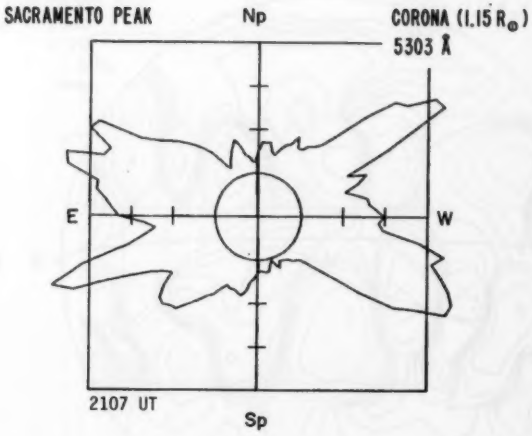
Solid - Plus; zero level
Dashed - Minus

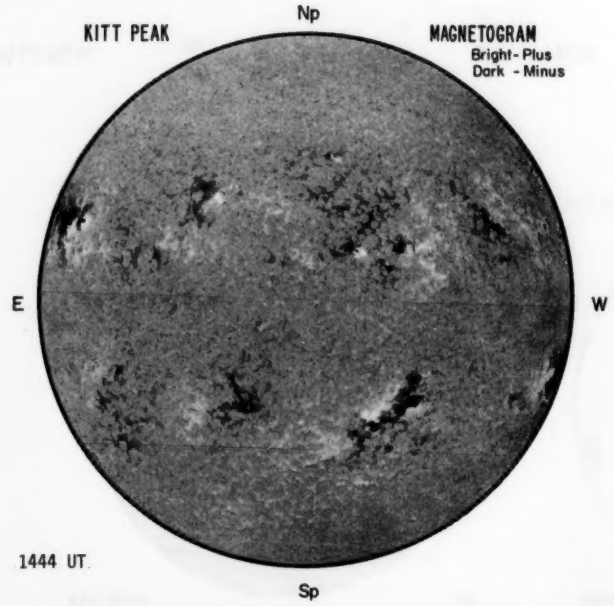


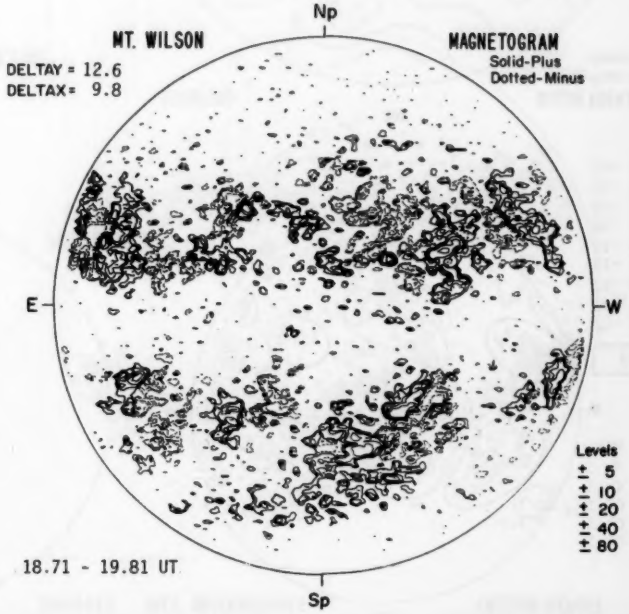
2107 UT

103
Oct 79

OCTOBER 28, 1979 (P = 25.22, B_o = 4.80, L_o = 81.83)





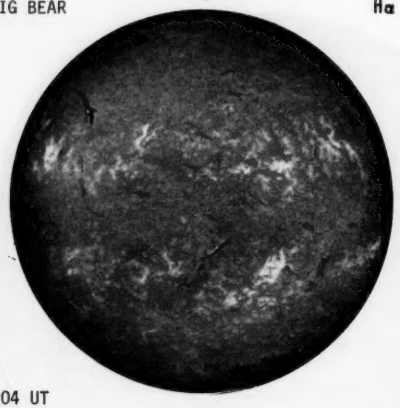


28 Np Hα BOULDER Np SUNSPOTS HALE OBSERVATORIES Np CALCIUM REPORT

Sp

28

BIG BEAR Np Hα

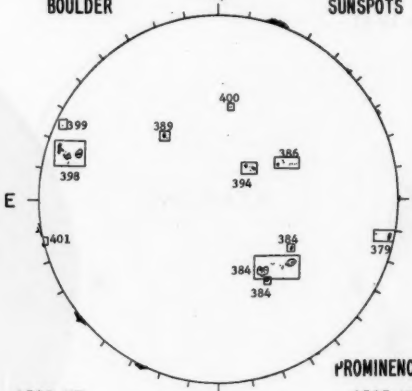


E W

1904 UT

Sp

BOULDER Np SUNSPOTS



E W

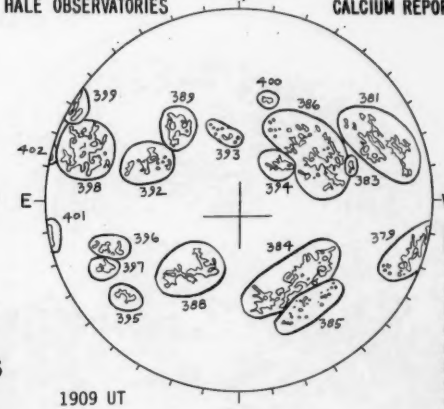
1530 UT

Sp

PROMINENCES

1535 UT

HALE OBSERVATORIES Np CALCIUM REPORT



E W

1909 UT

Sp

FAIR

79- 5000-3.0
81- 4500-2.5
84- 5800-3.5
86- 3500-2.5
88- 2000-2.5
89- 1700-2.5
94- 0600-2.5
98- 5800-3.5
99- 2300-3.0
01- 1500-3.5
02- 0100-3.5

NOSC LA POSTA Np 2.0 CM

NO DATA

E W

SCHEDULE

---- UT

Sp Ant. Temp. Unit 100° K

NOSC LA POSTA Np 8.6 MM

NO DATA

E W

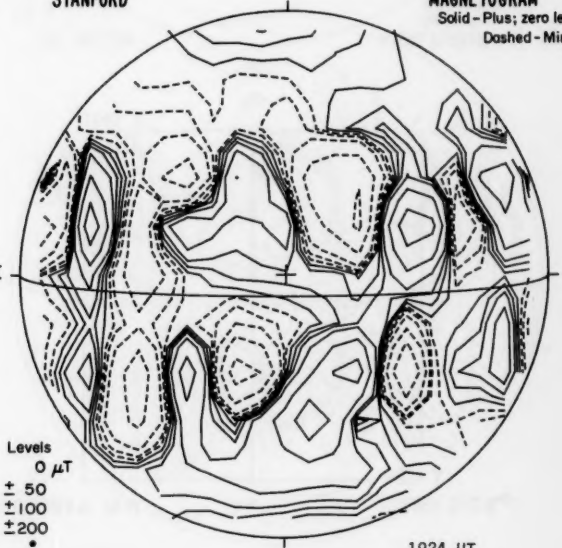
SCHEDULE

---- UT

Sp Ant. Temp. Unit 100° K

STANFORD Np MAGNETOGRAM

Solid - Plus; zero level
Dashed - Minus



E W

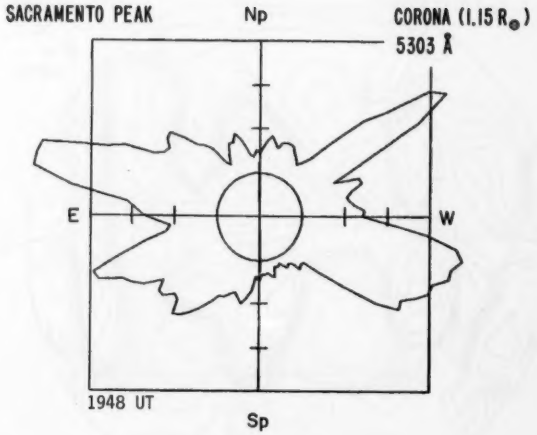
Levels
0 μT
± 50
±100
±200

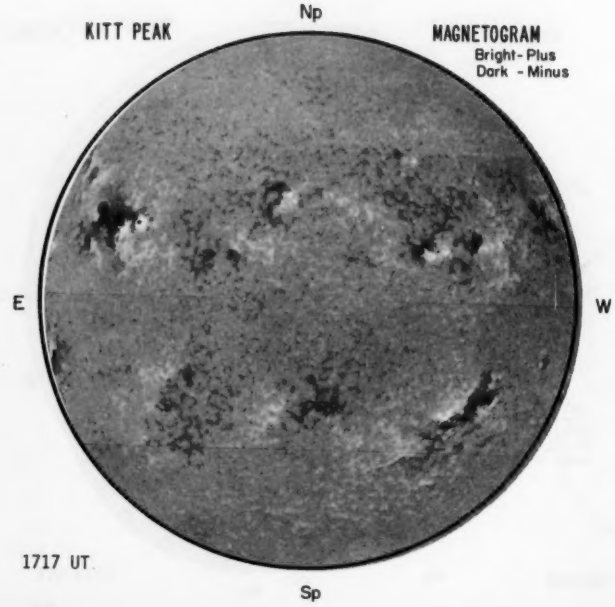
1924 UT

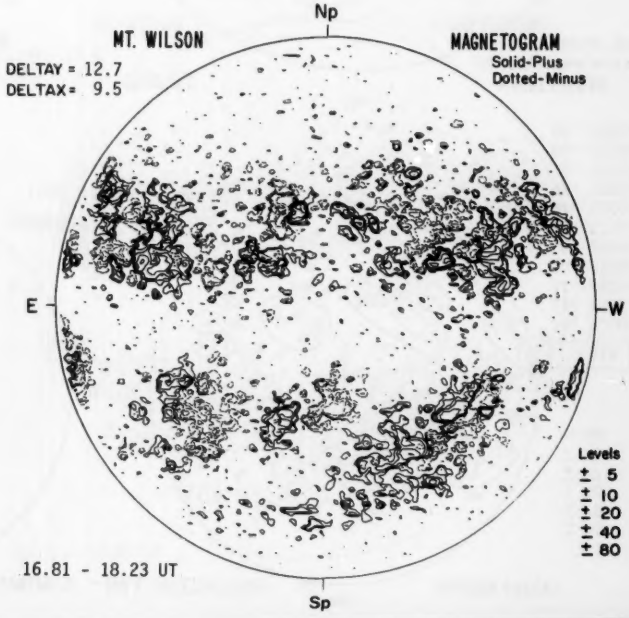
Sp

105
Oct 79

OCTOBER 29, 1979 (P=25.08, B_o=4.70, L_o=68.65)







29

Np

Np

SUNSPOTS

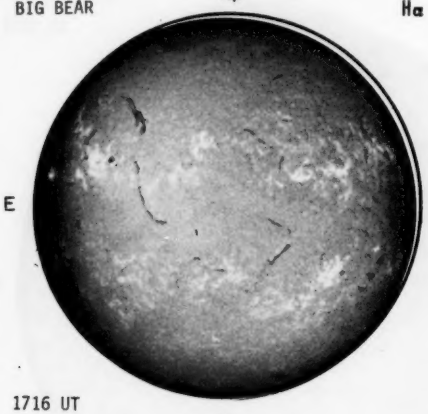
HALE OBSERVATORIES

Np

CALCIUM REPORT

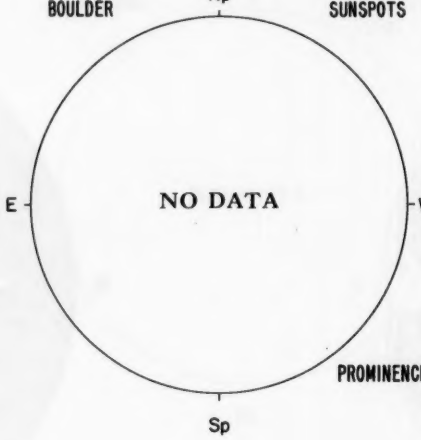
BOULDER

BIG BEAR Hα



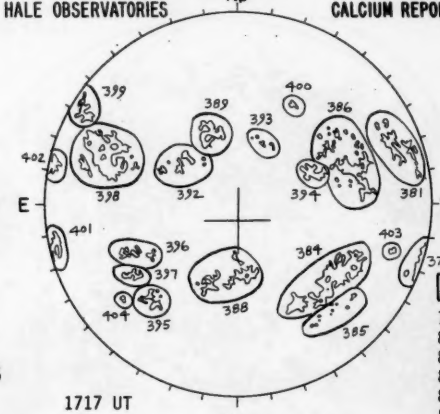
1716 UT

BOULDER SUNSPOTS



PROMINENCES

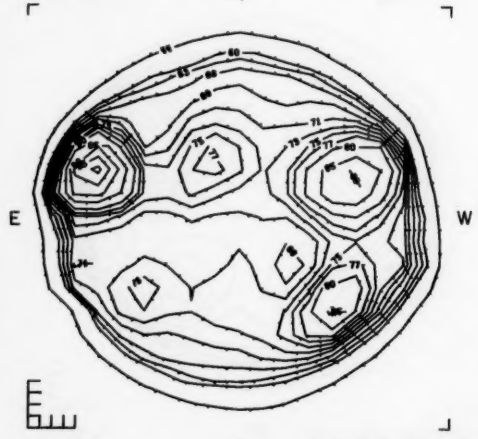
HALE OBSERVATORIES CALCIUM REPORT



1717 UT

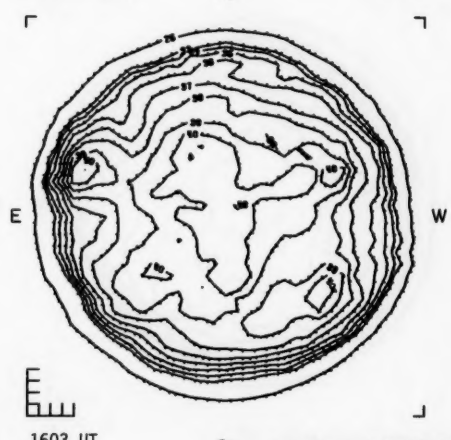
V POOR	
79-	3000-2.5
81-	4100-2.5
84-	6100-3.0
86-	3500-2.0
89-	1400-2.5
94-	0800-2.5
98-	5800-3.5
99-	2500-3.0
01-	3000-3.5
02-	2500-3.5

NOSC LA POSTA 2.0 CM



1700 UT Ant. Temp. Unit 100° K

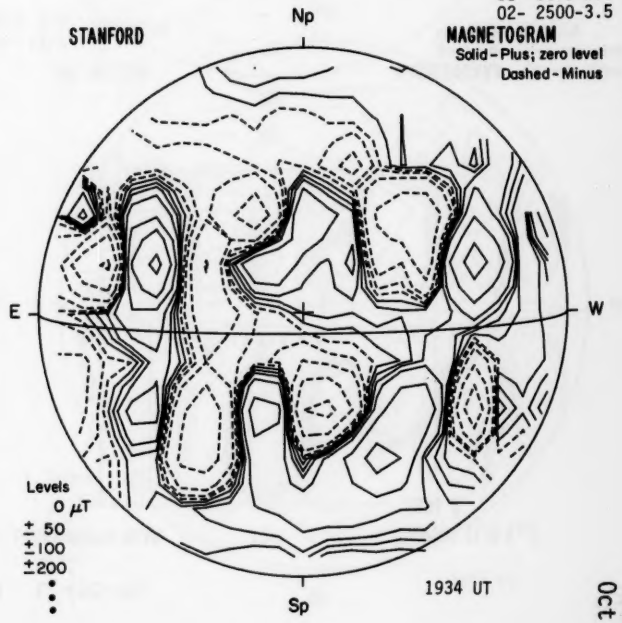
NOSC LA POSTA 8.6 MM



1603 UT Ant. Temp. Unit 100° K

STANFORD MAGNETOGRAM

Solid - Plus; zero level
Dashed - Minus



1934 UT

OCTOBER 30, 1979 (P = 24.94, B_o = 4.61, L_o = 55.46)

SACRAMENTO PEAK Np CORONA (1.15 $R_\odot$)
5303 Å

E NO DATA W

Sp

KITT PEAK Np MAGNETOGRAM
Bright - Plus
Dark - Minus

E W

1500 UT

Sp

MT. WILSON Np MAGNETOGRAM
Solid-Plus
Dotted-Minus

DELTAY = 12.7
DELTAX = 9.5

E W

Levels
± 5
± 10
± 20
± 40
± 80

17.00 - 18.43 UT

Sp

30

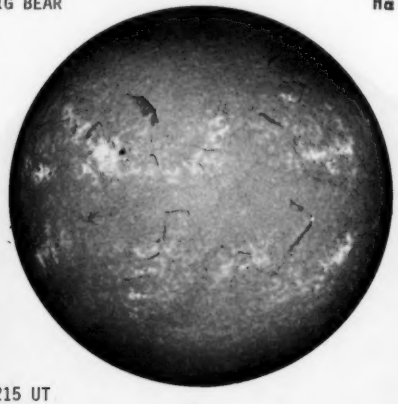
BIG BEAR Np Hα

BOULDER Np

SUNSPOTS HALE OBSERVATORIES Np CALCIUM REPORT

30

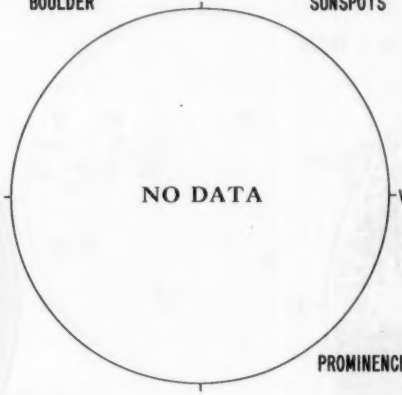
BIG BEAR Np Hα



2215 UT

Sp

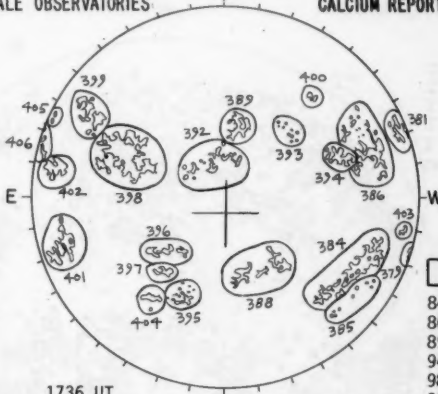
BOULDER Np SUNSPOTS



PROMINENCES

Sp

HALE OBSERVATORIES Np CALCIUM REPORT

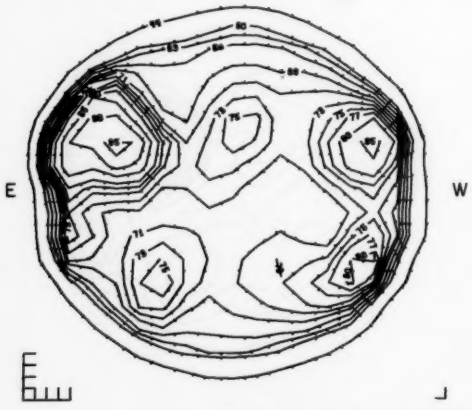


1736 UT

Sp

FAIR	
84-	5500-3.0
86-	3500-2.5
89-	1400-2.5
94-	1000-3.0
98-	5500-3.5
99-	2200-2.5
01-	4000-3.0
02-	2100-3.5
04-	0400-2.5

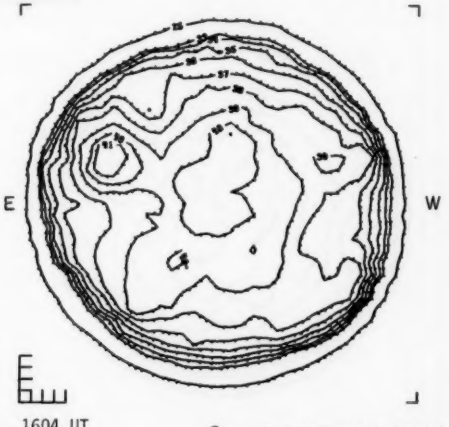
NOSC LA POSTA Np 2.0 CM



1702 UT

Sp Ant. Temp. Unit 100° K

NOSC LA POSTA Np 8.6 MM



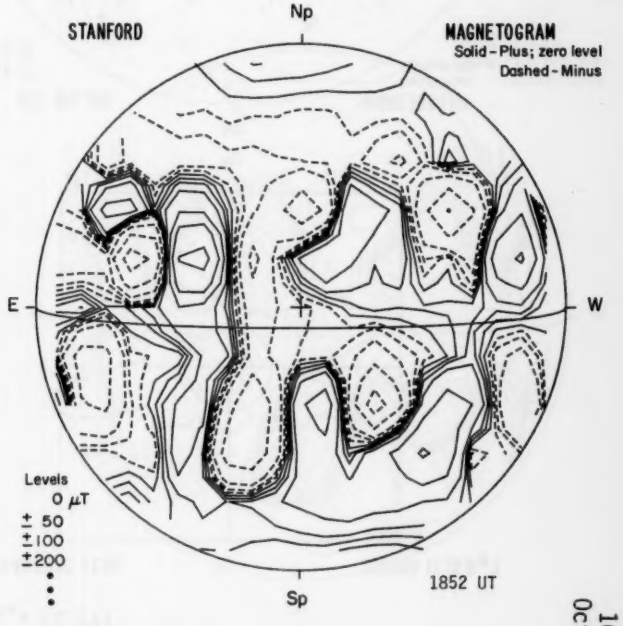
1604 UT

Sp Ant. Temp. Unit 100° K

STANFORD Np MAGNETOGRAM

Solid - Plus; zero level

Dashed - Minus



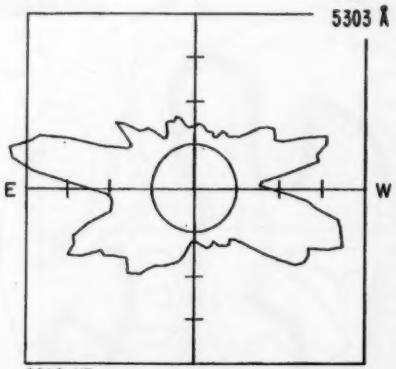
Sp

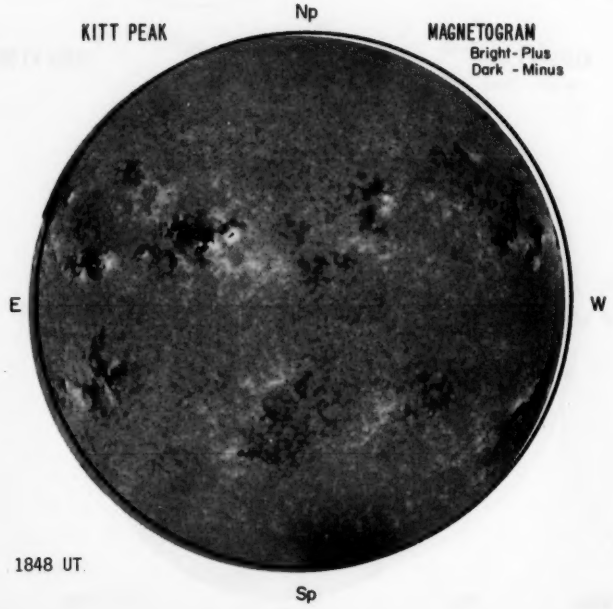
1852 UT

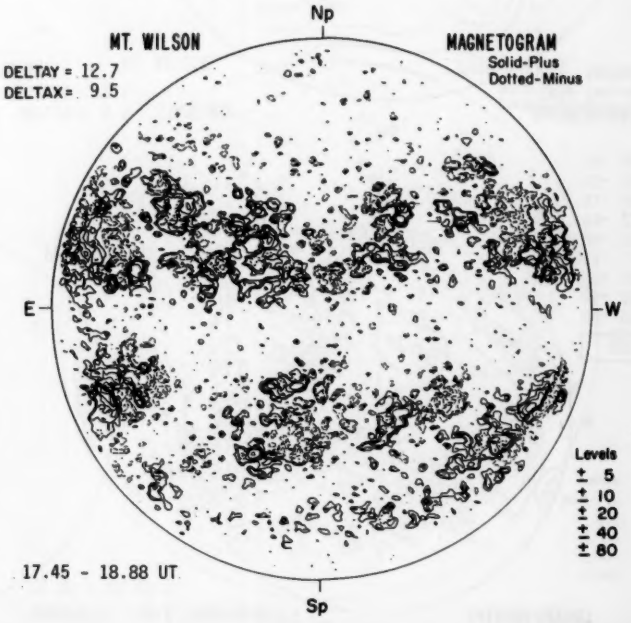
109
Oct 79

OCTOBER 31, 1979 (P = 24.79, B_o = 4.51, L_o = 42.27)

SACRAMENTO PEAK

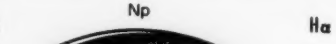






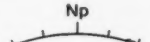
31

BIG BEAR



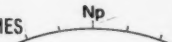
Hα

BOULDER



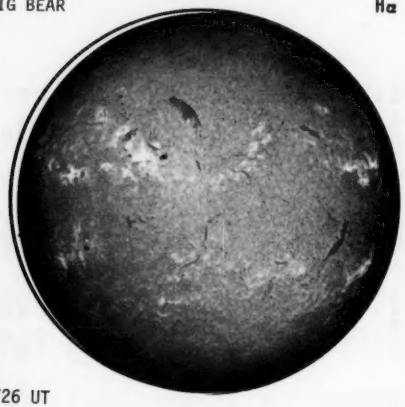
SUNSPOTS

HALE OBSERVATORIES



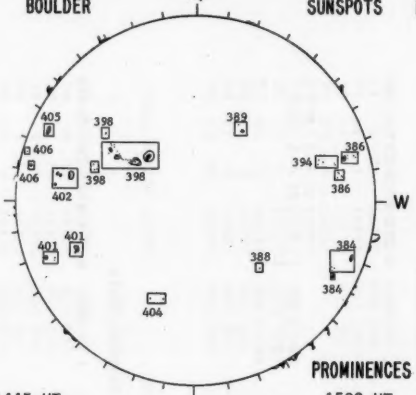
CALCIUM REPORT

BIG BEAR Np Hα



1726 UT Sp

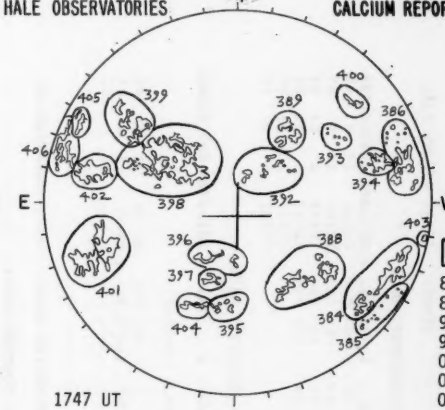
BOULDER Np SUNSPOTS



PROMINENCES

1445 UT 1502 UT Sp

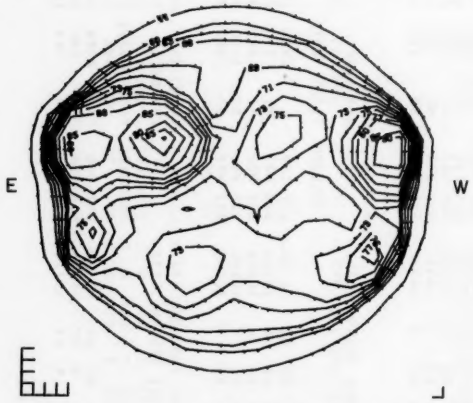
HALE OBSERVATORIES Np CALCIUM REPORT



1747 UT Sp

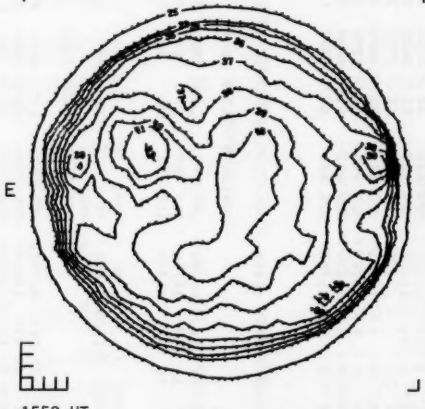
FAIR	
84- 4800-3.0	
86- 3500-2.5	
94- 1000-2.5	
98- 5500-3.5	
01- 5000-3.0	
02- 2300-3.0	
06- 3800-2.0	

NOSC LA POSTA Np 2.0 CM



1649 UT Sp Ant. Temp. Unit 100° K

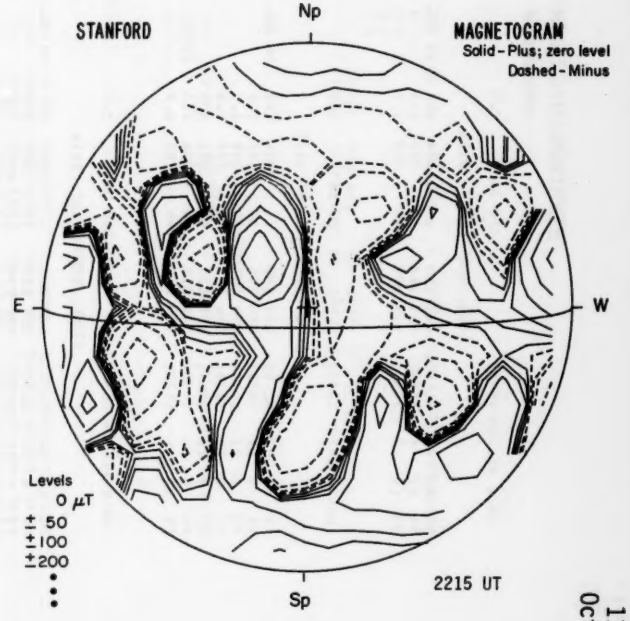
NOSC LA POSTA Np 8.6 MM



1558 UT Sp Ant. Temp. Unit 100° K

STANFORD Np MAGNETOGRAM

Solid - Plus; zero level
Dashed - Minus



Levels
0 μT
± 50
±100
±200

2215 UT Sp

111
Oct 79

REGIONS OF SOLAR ACTIVITY

OCTOBER 1979

HALE REGION 16351 CMP DATE 1.8

				CALCIUM PLAGE DATA				SUNSPOT DATA							
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	10	6	16351	N11 W68	67	200	1.5									
79	10	7	16351	N11 W79	67	600	1.5									

HALE REGION 16331 CMP DATE 2.0

				CALCIUM PLAGE DATA				SUNSPOT DATA							
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	9	26	16331	S35 E70	67	100	1.0									
79	9	27	16331	S35 E57	66	200	1.5									
79	9	28	16331	S34 E42	66	200	1.5									
79	9	29	16331	S35 E31	66	200	1.5									
79	9	30	16331	S36 E18	66	300	2.0	20920	S35 E18	66	(B)	2				
79	10	1	16331	S35 E01	64	200	1.5									

HALE REGION 16329 CMP DATE 2.3 RETURN OF REGION 16263 ROTATION 2

				CALCIUM PLAGE DATA				SUNSPOT DATA							
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	9	25	16329	N23 E89	61	300	2.0									
79	9	26	16329	N22 E76	61	1800	2.0									
79	9	27	16329	N23 E63	60	2000	2.0									
79	9	28	16329	N23 E48	60	1400	2.0									
79	9	29	16329	N23 E36	61	1800	2.0		N23 E30				H	10	2	BXO
79	9	30	16329	N23 E22	62	1800	2.0	20921	N24 E20	64	(B)	3	R	20	8	BXO
79	10	1	16329	N23 E05	60	1500	2.0	20921	N25 E06	60	AP	1				
79	10	2	16329	N23 W06	60	1600	2.0	20928	N23 E12	44	(B)	1				
79	10	5	16329	N24 W46	60	1200	1.5									
79	10	6	16329	N24 W62	61	1200	1.5									
79	10	7	16329	N24 W74	62	1200	1.0									

HALE REGION 16354 CMP DATE 2.6

				CALCIUM PLAGE DATA				SUNSPOT DATA							
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	10	7	16354	S12 W69	57	100	2.0									
79	10	8	16354	S13 W82	58	100	1.0									

HALE REGION 16332 CMP DATE 2.9

				CALCIUM PLAGE DATA				SUNSPOT DATA							
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	9	27	16332	S14 E70	53	300	1.0									
79	9	28	16332	S14 E56	52	200	1.5									
79	9	29	16332	S15 E44	53	300	1.0									
79	9	30	16332	S14 E30	54	200	1.5									
79	10	1	16332	S14 E13	52	300	1.0									
79	10	2	16332	S15 E03	51	100	1.0									
79	10	5	16332	S14 W39	53	100	1.0									

HALE REGION 16346 CMP DATE 3.0

				CALCIUM PLAGE DATA				SUNSPOT DATA							
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	10	5	16346	S20 W37	51	700	2.5	20934	S20 W35	52	(B)	3	R	10	6	BXO
79	10	6	16346	S21 W52	51	900	3.0	20934	S21 W47	51	(BP)	3	R	50	12	DRO
79	10	7	16346	S22 W64	52	1100	3.0	20934	S20 W60	51	(B)	3	H	80	7	DSO
79	10	8	16346	S23 W77	53	1300	3.0	20934	S20 W76	54	(B)	3	R	170	5	DAO

HALE REGION 16333 CMP DATE 3.1 RETURN OF REGIONS 16264 AND 16269 ROTATION 2

				CALCIUM PLAGE DATA				SUNSPOT DATA							
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	9	27	16333	N15 E74	49	700	1.5									
79	9	28	16333	N16 E60	48	700	1.5									

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HALE REGION 16333 (CONT)

CALCIUM PLAGE DATA							SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	9	29	16333	N15 E49	48	900	1.5									
79	9	30	16333	N15 E35	49	900	1.0									
79	10	1	16333	N15 E16	49	900	1.0									
79	10	2	16333	N15 E05	49	800	1.0									
79	10	4	16333					20932	N19 W24	52	(AP)	2				
79	10	5	16333					20932	N18 W36	53	(AP)	2				

HALE REGION 16335 CMP DATE 4.1

CALCIUM PLAGE DATA							SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	9	28	16335	S12 E71	37	100	1.0									
79	9	29	16335	S12 E60	37	200	1.0									

HALE REGION 16337 CMP DATE 4.3

CALCIUM PLAGE DATA							SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	9	30	16337	N15 E51	33	700	2.0	20922	N14 E50	34	(B)	5	R	70	10	DAO
79	10	1	16337	N15 E31	34	1200	3.0	20922	N14 E36	30	(D)	4	R	140	24	DAI
79	10	2	16337	N15 E21	33	1600	3.0	20922	N14 E23	33	(D)	4	H	170	23	EAI
79	10	3	16337					20922	N15 E07	36	(BY)	4	R	170	21	EAI
79	10	4	16337					20922	N15 W07	35	(B)	3	R	100	15	CAO
79	10	5	16337	N15 W20	34	1600	3.0	20922	N15 W23	40	(BP)	4	R	100	12	CAO
79	10	6	16337	N14 W35	34	1600	2.5	20922	N14 W37	41	(AP)	4	R	70	19	CSO
79	10	7	16337	N14 W47	35	1500	3.0	20922	N14 W51	42	(AP)	4	H	50	1	HSX
79	10	8	16337	N14 W60	36	1500	2.0	20922	N14 W65	43	(AP)	4	R	90	1	HSX
79	10	9	16337	N14 W73	37	1500	2.0	20922	N14 W80	44	(AP)	2	R	40	1	HRX
79	10	10	16337	N12 W87	37	600	1.0		N14 W85				H	110	1	HSX

HALE REGION 16334 CMP DATE 4.4 RETURN OF PART OF REGION 16267 ROTATION 2

CALCIUM PLAGE DATA							SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	9	27	16334	S30 E90	33	300	1.0									
79	9	28	16334	S28 E74	34	2500	3.0									
79	9	29	16334	S28 E63	34	2500	2.5									
79	9	30	16334	S27 E47	37	2500	3.0									
79	10	1	16334	S27 E33	32	2300	2.5	20919	S29 E35	31	(BP)	4	R	120	15	CAO
79	10	2	16334	S27 E22	32	2500	3.0	20919	S29 E23	33	(B)	4	H	100	8	CAO
79	10	3	16334					20919	S29 E07	36	(BP)	4	R	100	6	CSO
79	10	4	16334					20919	S28 W08	36	(BP)	4	R	80	4	CAO
79	10	5	16334	S27 W18	32	2100	3.0	20919	S28 W20	37	(AP)	4	R	90	1	HAX
79	10	6	16334	S28 W33	32	2100	3.0	20919	S29 W32	36	(AP)	4	R	80	5	CSO
79	10	7	16334	S29 W43	31	2100	3.0	20919	S28 W45	36	(AP)	4	H	70	1	HSX
79	10	8	16334	S31 W55	31	2100	3.0	20919	S28 W58	36	(AP)	4	R	110	1	HSX
79	10	9	16334	S30 W66	30	2100	2.0	20919	S28 W72	36	(AP)	4	R	40	1	HRX
79	10	10	16334	S30 W80	30	800	2.5		S28 W77				H	60	1	HSX

HALE REGION 16347 CMP DATE 4.9

CALCIUM PLAGE DATA							SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	10	5	16347	S09 W12	26	100	2.5									
79	10	6	16347	S09 W27	26	100	1.5									

HALE REGION 16355 CMP DATE 5.0

CALCIUM PLAGE DATA							SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	10	7	16355	S13 W37	25	300	3.5									
79	10	8	16355	S13 W50	26	400	3.5	20946	S12 W48	26	(B)	3	R	30	3	BXO
79	10	9	16355	S13 W64	28	900	4.0	20946	S11 W64	28	(B)	3	R	120	4	DAO
79	10	10	16355	S13 W78	28	1200	2.5	20946	S11 W75	27	(B)	2	H	120	4	DSO

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HALE REGION 16340 CMP DATE 5.2

				CALCIUM	PLAGE	DATA		SUNSPOT	DATA					
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	10	1	16340	N09 E44	21	100	1.5									
79	10	2	16340	N09 E33	21	100	1.0									

HALE REGION 16338 CMP DATE 6.4 RETURN OF PART OF REGIONS 16267 AND 16281 ROTATION 2

				CALCIUM	PLAGE	DATA		SUNSPOT	DATA					
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	9	30	16338	S29 E75	9	200	1.0									
79	10	1	16338	S30 E58	7	800	1.5									
79	10	2	16338	S31 E47	7	1200	1.5									
79	10	5	16338	S31 E09	6	800	2.0									
79	10	6	16338	S31 W05	4	800	2.0									
79	10	7	16338	S31 W16	4	700	1.5	20940	S29 W09	0	AP	1				
79	10	8	16338	S31 W29	5	700	2.0	20947	S34 W20	358	(AF)	2				
79	10	9	16338	S31 W40	4	700	2.0									
79	10	10	16338	S32 W52	2	700	2.0									
79	10	11	16338	S32 W67	1	700	2.0									
79	10	12	16338	S33 W78	0	600	1.0									

HALE REGION 16336 CMP DATE 6.6 RETURN OF REGION 16275 ROTATION 4

				CALCIUM	PLAGE	DATA		SUNSPOT	DATA					
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	9	29	16336	N12 E85	12	1200	1.5									
79	9	30	16336	N13 E82	2	2200	2.0	20923	N12 E73	11	(B)	2	R	110	5	DAO
79	10	1	16336	N14 E65	0	4300	3.0	20923	N12 E60	6	(B)	3	R	250	22	FAI
79	10		16336					20927	N12 E70	357	(BF)	4				
79	10	2	16336	N14 E53	1	4700	3.5	20923	N13 E47	9	(B)	3	H	80	19	CAO
79	10		16336					20927	N12 E59	358	(BF)	4				
79	10	3	16336					20923	N14 E40	3	(BY)	3	R	180	17	FAI
79	10	4	16336					20923	N13 E25	3	(BY)	3	R	60	11	ERO
79	10	5	16336	N14 E11	3	4500	3.0	20923	N13 E15	2	(BY)	3	R	60	6	CRO
79	10	6	16336	N14 W04	3	4500	3.5	20923	N11 E03	1	(B)	3	R	60	45	DRO
79	10		16336					20937	N12 W13	17	(AP)	3	R	20	7	BXO
79	10	7	16336	N14 W17	5	4200	3.5	20923	N12 W14	5	(Y)	4	H	50	12	CSO
79	10		16336					20937	N12 W27	18	(AP)	3				
79	10		16336					20939	N18 W16	7	(AP)	1				
79	10	8	16336	N14 W31	7	5300	3.5	20923	N12 W25	3	(D)	4	R	120	26	ERO
79	10		16336					20937	N12 W42	20	(AP)	2	R	20	1	AXX
79	10	9	16336	N14 W43	7	5000	3.5	20923	N12 W41	5	(BY)	3	R	80	13	CRO
79	10	10	16336	N14 W57	7	4500	3.0	20923	N12 W52	4	(BY)	3	H	50	7	DRO
79	10	11	16336	N14 W73	7	4000	3.0	20923	N12 W67	2	(B)	3				
79	10	12	16336	N14 W84	6	2000	2.0									

HALE REGION 16364 CMP DATE 7.3

				CALCIUM	PLAGE	DATA		SUNSPOT	DATA					
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	10	11	16364	N30 W62	356	200	2.5									
79	10	12	16364	N29 W73	355	200	2.0	20956	N30 W67	351	(AP)	3				

HALE REGION 16361 CMP DATE 8.5

				CALCIUM	PLAGE	DATA		SUNSPOT	DATA					
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	10	9	16361	S05 W16	340	200	1.5	20950	S06 W16	340	(B)	3	R	10	2	BXO
79	10	10	16361	S05 W30	340	900	2.0	20950	S05 W28	340	(B)	3	H	40	7	CRO
79	10	11	16361	S05 W46	340	1200	2.0	20950	S05 W45	340	(AP)	3	P	60	8	CSO
79	10	12	16361	S05 W58	340	1300	3.5	20950	S06 W58	342	(AP)	3				
79	10	13	16361					20950	S05 W71	343	AP	1				

HALE REGION 16356 CMP DATE 8.6

				CALCIUM	PLAGE	DATA		SUNSPOT	DATA					
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	10	7	16356	N29 E10	338	200	3.0	20941	N29 E12	339	(B)	3				
79	10	8	16356	N33 W02	338	300	2.0									

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HALE REGION 16356 (CONT) CMP DATE 8.6

				CALCIUM	PLAGE	DATA		SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	10	9	16356	N33 W14	338	500	1.5									
79	10	10	16356	N31 W27	337	500	1.5									
79	10	11	16356	N32 W43	337	300	1.0									
79	10	12	16356	N32 W54	336	200	1.0									

HALE REGION 16342 CMP DATE 8.8 RETURN OF REGION 16290 ROTATION 2

				CALCIUM	PLAGE	DATA		SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	10	2	16342	N13 E78	337	600	2.0	20929	N12 E80	337	(AP)	2	H	0	1	AXX
79	10	3	16342					20929	N13 E65	339	(AP)	2	R	20	2	AXX
79	10	4	16342					20929	N12 E51	338	(AP)	3	R	10	1	AXX
79	10	5	16342	N13 E40	335	800	2.5	20929	N13 E38	340	(AP)	2	R	0	1	AXX
79	10	6	16342	N13 E25	335	800	2.0									
79	10	7	16342	N13 E14	334	700	2.0	20942	N18 E10	341	(AF)	2				
79	10		16342					20943	N12 E18	333	(AF)	2	H	10	1	AXX
79	10	8	16342	N13 E01	335	500	2.0	20943	N13 E01	337	(B)	3	R	30	8	BXO
79	10	9	16342	N13 W12	336	500	2.5									
79	10	10	16342	N13 W26	336	600	2.5									
79	10	11	16342	N13 W42	336	500	2.0									
79	10	12	16342	N13 W54	336	500	1.5									

HALE REGION 16343 CMP DATE 8.8 RETURN OF REGION 16299 ROTATION 2

				CALCIUM	PLAGE	DATA		SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	10	2	16343	S17 E80	335	100	2.0									
79	10	5	16343	S17 E40	335	900	3.0	20935	S15 E42	336	(B)	3	R	10	4	BXO
79	10	6	16343	S17 E25	335	1200	2.5	20935	S16 E28	337	(B)	3	R	30	6	CRO
79	10	7	16343	S17 E14	334	1300	2.5	20935	S16 E15	336	(B)	3	H	10	3	BXO
79	10	8	16343	S16 E01	335	1300	2.5	20948	S13 W01	339	(B)	3	R	60	6	CRO
79	10	9	16343	S16 W12	336	1300	2.5	20948	S13 W15	339	(B)	4	R	60	10	ORO
79	10	10	16343	S15 W29	339	1800	2.5	20948	S13 W27	339	(BP)	4	H	110	8	DAO
79	10	11	16343	S14 W45	339	2200	2.5	20948	S13 W45	340	(B)	4	P	150	13	ESI
79	10	12	16343	S14 W56	338	2300	3.0	20948	S13 W55	339	(B)	3				
79	10	13	16343					20948	S13 W67	339	(B)	3				

HALE REGION 16341 CMP DATE 9.1

				CALCIUM	PLAGE	DATA		SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	10	1	16341	N21 E90	336	300	1.5									
79	10	2	16341	N23 E81	334	1500	3.5	20930	N24 E84	333	(AP)	3	H	60	1	HSX
79	10	3	16341					20930	N26 E70	334	(BP)	4	R	320	10	EKI
79	10	4	16341					20930	N25 E60	329	(B)	5	R	530	11	EKI
79	10	5	16341	N23 E43	332	3300	3.0	20930	N25 E47	331	(B)	5	R	560	17	EKI
79	10	6	16341	N24 E28	332	3700	3.0	20930	N24 E33	332	(B)	5	R	470	28	EKO
79	10	7	16341	N24 E17	331	3700	3.5	20930	N24 E20	331	(BY)	5	H	170	15	EHI
79	10	8	16341	N24 E04	332	3500	3.0	20930	N25 E07	331	(BY)	6	R	300	21	EKO
79	10	9	16341	N24 W09	333	3800	3.5	20930	N25 W05	329	(BP)	5	R	490	16	EKO
79	10	10	16341	N24 W23	333	3500	3.0	20930	N25 W17	329	(BP)	5	H	230	16	EHI
79	10	11	16341	N24 W39	333	3500	2.5	20930	N25 W33	328	(BP)	5	P	360	7	CKO
79	10	12	16341	N24 W50	332	3500	2.5	20930	N25 W42	326	(BP)	4	H	260	7	CHO
79	10	13	16341					20930	N24 W60	332	(AP)	4				
79	10	15	16341	N27 W88	332	1000	2.5									

HALE REGION 16344 CMP DATE 10.1 RETURN OF REGION 16279 AND NEW ROTATIONS 3 AND 1

				CALCIUM	PLAGE	DATA		SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	10	3	16344					20931	N17 E85	319	(X)	2				
79	10	4	16344					20931	N15 E75	314	(B)	4				
79	10	5	16344	N14 E58	317	4700	3.5	20931	N16 E59	319	(D)	5	R	470	42	FKC
79	10	6	16344	N14 E43	317	5400	3.0	20931	N15 E44	321	(D)	5	R	610	47	EKI
79	10	7	16344	N14 E31	317	5200	3.5	20931	N15 E30	321	(D)	5	H	240	28	EKI
79	10		16344					20945	N15 E44	307	(AP)	2				
79	10		16344					20944	N21 E41	318	(AP)	3				
79	10	8	16344	N14 E18	318	5000	3.5	20931	N16 E17	321	(D)	5	R	540	36	EKO
79	10		16344					20944	N21 E27	311	(AP)	3	R	20	1	AXX
79	10	9	16344	N14 E05	319	4600	3.5	20931	N16 E03	321	(BY)	5	R	460	14	EKO
79	10	10	16344	N14 W10	320	4600	3.0	20931	N16 W09	321	(BY)	5	H	330	21	EKI

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HALE REGION 16344 (CONT)

CALCIUM PLAGE DATA							SUNSPOT DATA							
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	10		16344					20953	N23 E03	309	(AP)	2				
79	10	11	16344	N14 W26	320	5000	3.0	20931	N16 W24	319	(BP)	5	P	420	13	FHO
79	10	12	16344	N14 W37	319	5000	3.5	20931	N15 W32	316	(BP)	5	H	340	15	EHO
79	10	13	16344					20931	N15 W47	319	(BP)	5	H	200	3	CHO
79	10	15	16344	N14 W74	318	5000	3.0	20931	N15 W75	321	(AP)	3	R	690	13	EHO
79	10		16344					20964	N18 W63	309	(AF)	4				
79	10	16	16344	N14 W87	318	2500	2.5									
79	10		16344					20964	N18 W75	308	AF	3	H	470	2	FHO

HALE REGION 16348 CMP DATE 10.6

CALCIUM PLAGE DATA							SUNSPOT DATA							
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	10	4	16348					20933	S34 E80	309	(X)	2	R	40	1	HSX
79	10	5	16348	S34 E60	315	1500	2.5	20933	S34 E65	313	(AF)	3	R	40	1	HSX
79	10	6	16348	S34 E46	314	1800	2.5	20933	S33 E52	313	(AF)	3	R	90	1	HSX
79	10	7	16348	S34 E37	311	1600	2.5	20933	S33 E40	311	(AF)	3	H	50	1	HSX
79	10	8	16348	S34 E24	312	1800	2.5	20933	S33 E28	310	(AF)	3	R	40	2	HSX
79	10	9	16348	S34 E12	312	1800	2.0	20933	S33 E14	310	(AF)	3	R	20	1	HRX
79	10	10	16348	S34 W02	312	1400	2.5	20933	S33 E00	312	AP	1	H	20	1	HRX
79	10	11	16348	S34 W17	311	1400	2.0									
79	10	12	16348	S34 W27	309	1300	2.0									
79	10	15	16348	S35 W66	310	1000	1.0									

HALE REGION 16349 CMP DATE 10.9

CALCIUM PLAGE DATA							SUNSPOT DATA							
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	10	5	16349	S10 E68	307	200	1.0									
79	10	6	16349	S09 E52	308	100	1.0									

HALE REGION 16352 CMP DATE 11.0

CALCIUM PLAGE DATA							SUNSPOT DATA							
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	10	6	16352	N39 E53	307	100	1.5									
79	10	7	16352	N39 E42	306	100	1.0									

HALE REGION 16372 CMP DATE 11.6

CALCIUM PLAGE DATA							SUNSPOT DATA							
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	10	15	16372	S19 W54	298	300	1.0									
79	10	16	16372	S19 W67	298	1000	3.5									
79	10	17	16372	S19 W90	306	800	3.0									

HALE REGION 16350 CMP DATE 11.7

CALCIUM PLAGE DATA							SUNSPOT DATA							
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	10	5	16350	N11 E80	295	100	1.0									
79	10	6	16350	N12 E65	295	1000	3.0	20938	N09 E66	299	(BP)	3	R	50	5	CRO
79	10	7	16350	N12 E53	295	1100	3.5	20938	N10 E55	296	(B)	4	H	80	6	DSO
79	10	8	16350	N12 E39	297	1600	3.5	20938	N11 E41	297	(B)	5	R	480	16	DAI
79	10	9	16350	N13 E26	298	2700	3.0	20938	N11 E28	296	(BY)	4	R	430	16	DKI
79	10	10	16350	N13 E12	298	2500	3.0	20938	N11 E15	297	(B)	5	H	370	21	DAI
79	10	11	16350	N13 W04	298	2500	3.5	20938	N11 W01	296	(B)	5				
79	10	12	16350	N13 W15	297	3100	3.0	20938	N12 W11	295	(B)	4				
79	10	13	16350					20938	N12 W24	296	(BY)	4				
79	10	15	16350	N13 W53	297	3000	3.0	20938	N12 W50	296	(BP)	4	R	340	15	EKO
79	10	16	16350	N13 W66	297	3000	3.0	20938	N11 W62	295	BP	4				
79	10	17	16350	N13 W80	296	3000	2.5	20938	N10 W79	298	(AP)	3				

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HALE REGION 16380 CMP DATE 11.7

				CALCIUM PLAGE DATA				SUNSPOT DATA							
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT CLASS
79	10	17	16380	N21 W80	296	300	1.0								

HALE REGION 16371 CMP DATE 11.9

				CALCIUM PLAGE DATA				SUNSPOT DATA							
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT CLASS
79	10	12	16371	S12 W12	294	200	1.0								
79	10	15	16371	S12 W50	294	300	1.0								

HALE REGION 16353 CMP DATE 12.6

				CALCIUM PLAGE DATA				SUNSPOT DATA							
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT CLASS
79	10	6	16353	S10 E74	286	900	1.5								
79	10	7	16353	S09 E63	285	1100	1.5								
79	10	8	16353	S09 E50	286	900	1.5								
79	10	9	16353	S09 E38	286	900	2.0								
79	10	10	16353	S10 E24	286	700	2.5								
79	10	11	16353	S10 E08	286	500	2.0								
79	10	12	16353	S09 W05	287	300	1.5								
79	10	15	16353	S09 W45	289	400	1.0								

HALE REGION 16369 CMP DATE 13.1

				CALCIUM PLAGE DATA				SUNSPOT DATA							
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT CLASS
79	10	12	16369	S26 E04	278	100	1.0								
79	10	15	16369	S26 W36	280	300	2.5	20965	S27 W33	279	AP	1			
79	10	16	16369	S27 W49	280	200	1.0								
79	10	17	16369	S27 W62	278	200	1.0								
79	10	18	16369	S27 W76	279	200	1.0								

HALE REGION 16359 CMP DATE 14.2 RETURN OF PART OF REGION 16285 ROTATION 3

				CALCIUM PLAGE DATA				SUNSPOT DATA							
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT CLASS
79	10	8	16359	S23 E72	264	400	1.0								
79	10	9	16359	S24 E60	264	2000	2.0								
79	10	10	16359	S24 E45	265	1600	2.0								
79	10	11	16359	S24 E30	264	1300	2.0								
79	10	12	16359	S24 E18	264	1300	2.0								
79	10	15	16359	S24 W20	264	700	1.5								
79	10	16	16359	S24 W33	264	700	1.0								
79	10	17	16359	S24 W46	262	700	1.0								
79	10	18	16359	S24 W60	263	700	1.0								

HALE REGION 16360 CMP DATE 14.6 RETURN OF PART OF REGION 16285 ROTATION 3

				CALCIUM PLAGE DATA				SUNSPOT DATA							
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT CLASS
79	10	8	16360	S34 E80	256	300	1.0								
79	10	9	16360	S34 E68	256	700	2.0	20951	S33 E65	259	(AP)	2			
79	10	10	16360	S34 E53	257	500	2.0	20951	S33 E49	263	(AP)	2			
79	10	11	16360	S34 E36	258	700	2.5	20951	S33 E33	262	(AP)	3	P	10	5 BXO
79	10	12	16360	S34 E23	259	500	2.5	20951	S33 E25	259	(BP)	3			
79	10	13	16360					20951	S33 E09	263	(AP)	2			
79	10	15	16360	S34 W15	259	300	1.5	20951	S33 W15	261	(AP)	2			
79	10	16	16360	S34 W28	259	300	1.5	20973	S34 W23	256	AP	1			
79	10	17	16360	S34 W41	257	300	1.0	20975	S33 W40	259	B	1			
79	10		16360					20976	S31 W24	243	AP	1			
79	10	18	16360	S34 W54	257	300	1.0								

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HALE REGION 16358 — CMP DATE 14.0 — RETURN OF PART OF REGION 16293 — ROTATION 4

CALCIUM PLAGE DATA

YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT
79	10	8	16358	S17 E80	256	400	1.0
79	10	9	16358	S16 E67	257	600	1.0
79	10	10	16358	S16 E54	256	200	1.0
79	10	11	16358	S17 E38	256	200	1.0
79	10	12	16358	S17 E27	255	100	1.0

SUNSPOT DATA

MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS

HALE REGION 16357 — CMP DATE 15.3 — RETURN OF REGION 16288 AND NEW — ROTATIONS 2 AND 1

CALCIUM PLAGE DATA

YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT
79	10	8	16357	N26 E87	249	2000	2.5
79	10	9	16357	N26 E75	249	4000	3.5
79	10		16357				
79	10	10	16357	N26 E60	250	5000	3.5
79	10		16357				
79	10	11	16357	N26 E44	250	5500	3.5
79	10		16357				
79	10	12	16357	N26 E32	250	5000	3.0
79	10		16357				
79	10	13	16357				
79	10		16357				
79	10	15	16357	N26 W05	249	5000	3.5
79	10		16357				
79	10	16	16357	N26 W19	250	5000	3.5
79	10		16357				
79	10	17	16357	N26 W32	248	5500	3.5
79	10		16357				
79	10	18	16357	N27 W45	248	5600	3.5
79	10		16357				
79	10	19	16357	N26 W56	248	4700	4.0
79	10	21	16357	N27 W83	248	2000	3.0
79	10	22	16357				

SUNSPOT DATA

MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
20949	N23 E79	259	(AP)	4	R	110	1	HSX
20949	N23 E67	257	(AP)	3	R	170	11	EKO
20952	N28 E79	245	X	2				
20949	N24 E55	257	(BP)	4				
20952	N28 E65	247	(D)	3	M	260	14	ESO
20949	N24 E38	257	(AP)	4	P	150	8	DHO
20952	N28 E50	245	(B)	4	P	220	16	DSI
20949	N24 E27	257	(AP)	5				
20952	N28 E38	246	(BF)	4	M	190	13	DSO
20949	N24 E16	256	(BP)	4	M	160	7	CSO
20952	N28 E27	245	(BF)	3	M	190	24	EAI
20949	N23 W15	261	(BP)	4	R	140	8	CAO
20952	N28 E00	246	(B)	3	R	80	17	DRI
20949	N23 W28	261	AP	4	M	110	5	ESO
20952	N29 W12	245	BY	4	M	80	15	DAI
20949	N23 W42	261	(BP)	4				
20952	N29 W24	243	(BY)	4	M	90	2	HSX
20949	N23 W55	261	(AP)	3	M	110	4	CSO
20952	N29 W37	243	(BF)	4	M	140	10	DAI
	N27 W50				R	200	5	CHO
20952	N29 W70	237	(AP)	2	M	220	3	DAO
20952	N29 W85	238	(X)	2	M	120	1	HSX

HALE REGION 16362 — CMP DATE 15.5 — RETURN OF PART OF REGION 16285 — ROTATION 3

CALCIUM PLAGE DATA

YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT
79	10	9	16362	S33 E75	249	200	1.0
79	10	10	16362	S33 E61	249	400	1.0
79	10	11	16362	S33 E45	249	400	1.0
79	10	12	16362	S32 E34	248	300	1.0
79	10	15	16362	S32 W03	247	300	1.0
79	10	16	16362	S32 W15	246	200	1.0

SUNSPOT DATA

MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
	S35 E60				M	10	1	AXX
	S33 E32				M	20	1	HRX

HALE REGION 16365 — CMP DATE 16.7

CALCIUM PLAGE DATA

YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT
79	10	11	16365	S13 E62	232	500	2.5
79	10	12	16365	S14 E50	232	700	2.0
79	10	13	16365				
79	10	15	16365	S15 E13	231	600	3.5
79	10	16	16365	S15 E00	231	700	3.0
79	10	17	16365	S15 W13	229	800	3.0
79	10	18	16365	S15 W27	230	800	3.0
79	10	19	16365	S15 W39	231	700	2.5
79	10	21	16365	S16 W67	232	700	2.0
79	10	22	16365	S16 W81	231	700	3.0

SUNSPOT DATA

MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
20955	S13 E62	233	(AP)	3	P	10	1	AXX
20960	S17 E44	228	(B)	2				
20960	S17 E17	229	(B)	2				
20960	S16 E03	230	B	3				
20960	S15 W11	230	(AP)	3				
	S16 W29				M	8	1	AXX
	S16 W40				R	30	1	HRX
20989	S15 W70	237	(AP)	3				

HALE REGION 16363 — CMP DATE 16.8 — RETURN OF REGION 16319 — ROTATION 2

CALCIUM PLAGE DATA

YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT
79	10	10	16363	N14 E80	230	3000	3.0
79	10	11	16363	N14 E65	229	3000	3.0
79	10	12	16363	N14 E54	228	3500	3.0
79	10	13	16363				
79	10	15	16363	N14 E15	229	2700	2.5
79	10		16363				
79	10	16	16363	N14 E01	230	2700	2.5

SUNSPOT DATA

MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
20954	N12 E75	237	(AP)	3	M	50	5	DSO
20954	N12 E60	235	(AP)	4				
20954	N12 E49	235	(AP)	4	M	220	3	HHX
20954	N13 E36	236	(BP)	4	M	170	3	HHX
20954	N13 E10	236	(AP)	4	R	80	5	DSO
20966	N15 E23	223	(AF)	2				
20954	N12 W03	236	AP	4	M	70	3	CSO

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HALE REGION 16363 (CONT) CMP DATE 16.8 RETURN OF REGION 16319 ROTATION 2

CALCIUM PLAGE DATA

YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT
79	10	17	16363	N15 W13	229	2500	3.0
79	10	18	16363	N15 W26	229	2500	2.5
79	10	19	16363	N15 W37	229	2000	2.0
79	10	21	16363	N14 W65	230	1800	1.5
79	10	22	16363	N14 W78	228	1500	1.5

SUNSPOT DATA

MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
20954	N12 W17	236	(AP)	4				
20954	N12 W30	236	(AP)	2	M	60	3	CSO
	N10 W42				R	40	1	HSX

HALE REGION 16366 CMP DATE 17.5

CALCIUM PLAGE DATA

YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT
79	10	11	16366	N33 E70	224	100	1.0
79	10	12	16366	N33 E60	222	300	3.0
79	10	13	16366				
79	10	15	16366	N33 E23	221	1800	4.0
79	10	16	16366	N33 E10	221	1800	2.5
79	10	17	16366	N33 W05	221	2500	3.5
79	10	18	16366	N33 W18	221	3200	3.5
79	10	19	16366	N33 W33	222	3700	3.0
79	10	21	16366	N33 W56	221	3700	3.0
79	10	22	16366	N33 W69	219	3700	3.0
79	10	23	16366	N33 W81	218	2800	2.0

SUNSPOT DATA

MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
20961	N32 E49	223	(B)	4	M	20	5	BXO
20961	N32 E24	222	(BY)	5	R	270	27	ESI
20961	N32 E10	223	BY	5	M	390	21	EAI
20961	N32 W03	222	(D)	5	M	410	25	EKI
20961	N32 W15	221	(G)	4	M	490	23	EHI
	N30 W29				R	480	43	EKI
20961	N32 W55	222	(BP)	4	M	200	4	EHO
20961	N33 W69	222	(AF)	3				
20961	N32 W88	227	(X)	2	R	40	1	HSX

HALE REGION 16367 CMP DATE 17.9

CALCIUM PLAGE DATA

YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT
79	10	11	16367	N04 E80	214	300	1.0
79	10	12	16367	N04 E68	214	500	1.5
79	10	15	16367	N04 E29	215	700	2.0
79	10	16	16367	N05 E16	215	500	2.0
79	10	17	16367	N05 E02	214	500	2.0
79	10	18	16367	N05 W13	216	500	2.0
79	10	19	16367	N05 W24	216	400	1.5
79	10	21	16367	N05 W53	218	500	1.5
79	10	22	16367	N05 W66	216	400	1.0

SUNSPOT DATA

MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS

HALE REGION 16370 CMP DATE 18.1

CALCIUM PLAGE DATA

YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT
79	10	12	16370	S17 E70	212	200	1.0
79	10	15	16370	S18 E31	213	300	3.0
79	10	16	16370	S18 E17	214	400	2.5
79	10	17	16370	S18 E04	212	600	2.5
79	10	18	16370	S18 W10	213	600	2.5
79	10	19	16370	S18 W22	214	600	2.0
79	10	21	16370	S18 W51	216	400	2.0
79	10	22	16370	S18 W65	215	400	1.0

SUNSPOT DATA

MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
20967	S17 E33	213	(B)	2				
20967	S17 E17	216	AP	2				
20967	S17 E03	216	(AP)	1	M	30	4	DRO
20983	S27 W10	216	(B)	1	M	20	6	BXO

HALE REGION 16376 CMP DATE 19.0

CALCIUM PLAGE DATA

YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT
79	10	15	16376	S21 E41	203	100	1.0
79	10	16	16376	S21 E29	202	200	2.5
79	10	17	16376	S21 E16	200	200	1.0
79	10	18	16376	S21 E02	201	100	1.0
79	10	19	16376	S20 W10	202	100	1.0

SUNSPOT DATA

MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
	S17 W01				M	0	1	AXX

HALE REGION 16368 CMP DATE 19.2 RETURN OF REGION 16298 ROTATION 3

CALCIUM PLAGE DATA

YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT
79	10	11	16368	N10 E90	204	500	1.0
79	10	12	16368	N04 E85	197	6100	2.5
79	10	13	16368				
79	10		16368				
79	10	15	16368	N05 E47	197	8500	3.0

SUNSPOT DATA

MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
20962	S07 E68	204	(B)	3				
20963	N07 E80	192	X	2				
20962	S07 E43	203	(B)	3				

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HALE REGION 16368 (CONT) CMP DATE 19.2 — RETURN OF REGION 16298 — ROTATION 3

CALCIUM PLAGE DATA

YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT
79	10		16368				
79	10		16368				
79	10		16368				
79	10		16368				
79	10	16	16368	N05 E33	198	8500	3.0
79	10		16368				
79	10		16368				
79	10		16368				
79	10	17	16368	N06 E20	196	8500	3.0
79	10		16368				
79	10		16368				
79	10	18	16368	N05 E05	198	8200	3.0
79	10		16368				
79	10	19	16368	N05 W08	200	8500	2.5
79	10	21	16368	N05 W35	200	8500	2.5
79	10		16368				
79	10	22	16368	N05 W48	198	8000	2.5
79	10		16368				
79	10	23	16368	N05 W62	199	7500	2.0
79	10		16368				
79	10	24	16368	N05 W75	199	5100	2.0
79	10	25	16368	N05 W88	200	1200	2.0

SUNSPOT DATA

MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
20963	N07 E55	191	(AP)	2	R	20	1	AXX
20968	N08 E37	209	(AF)	1				
20969	N05 E43	203	(AP)	1				
20971	N03 E51	195	(AF)	2				
20962	S07 E28	205	B	3				
20963	N06 E43	190	B	2				
20968	N10 E25	208	AP	1				
20969	N07 E30	203	AP	2	M	0	1	AXX
20962	S07 E15	204	(B)	4	M	0	1	AXX
20977	N02 E18	201	AF	2				
20981	N04 E23	196	(AF)	2	M	60	4	DSO
20962	S07 E03	203	(AP)	2	M	30	4	CSO
20984	N06 E05	201	(AP)	1	M	20	3	CRO
	N04 E02				R	20	4	BXO
20962	S07 W40	207	(AP)	2				
20990	N05 W35	202	(B)	2				
20990	N06 W47	200	(AP)	2				
20997	N19 W42	195	(BY)	3	M	50	5	CRO
21000	N17 W63	202	(AP)	2	R	30	5	BXO
21001	N01 W55	194	(AF)	2				
21006	N04 W77	204	(AP)	2	R	20	1	HRX

HALE REGION 16390 CMP DATE 20.0

CALCIUM PLAGE DATA

YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT
79	10	24	16390	N14 W63	187	400	2.5
79	10	25	16390	N14 W75	187	300	1.5
79	10	26	16390	N14 W88	187	300	1.0

SUNSPOT DATA

MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
21007	N15 W58	185	(AP)	2	R	10	4	BXO

HALE REGION 16373 CMP DATE 20.5 — RETURN OF REGION 16307 — ROTATION 2

CALCIUM PLAGE DATA

YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT
79	10	15	16373	N27 E64	180	1200	3.5
79	10	16	16373	N27 E52	179	2000	4.5
79	10	17	16373	N27 E39	177	3300	3.5
79	10	18	16373	N27 E25	176	4000	3.5
79	10		16373				
79	10	19	16373	N26 E12	180	4100	3.5
79	10	21	16373	N27 W14	179	4600	3.5
79	10		16373				
79	10	22	16373	N27 W27	177	5000	3.5
79	10		16373				
79	10	23	16373	N27 W41	176	5000	3.5
79	10		16373				
79	10	24	16373	N27 W54	176	5200	4.0
79	10	25	16373	N28 W66	176	4600	3.5
79	10	26	16373	N28 W79	176	4300	3.5
79	10	27	16373	N28 W90	175	2700	3.0

SUNSPOT DATA

MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
20970	N27 E65	181	(B)	4	R	390	10	EKO
20970	N27 E54	179	BY	5	M	470	14	EHI
20970	N27 E40	179	(D)	5	M	650	21	EHI
20970	N27 E27	179	(D)	5	M	1120	28	EKC
20985	N25 E17	189	(AP)	3	M	30	5	CRO
	N27 E15				R	1140	26	EKC
20970	N27 W10	177	(D)	5	M	810	25	EKI
20985	N26 W23	190	(AP)	3	M	30	2	HSX
20970	N27 W23	176	(D)	5	M	780	35	EKC
20985	N26 W35	188	(AP)	2	M	20	2	HSX
20970	N27 W37	176	(B)	4	R	600	43	EKC
20985	N25 W50	189	(AP)	3	R	20	4	BXO
20970	N27 W50	177	(BY)	4	R	400	39	EKC
20970	N27 W64	177	(BY)	3				
20970	N28 W76	175	(BY)	2				

HALE REGION 16377 CMP DATE 20.5 — RETURN OF PART OF REGION 16305 — ROTATION 2

CALCIUM PLAGE DATA

YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT
79	10	15	16377	S14 E62	182	300	1.0
79	10	16	16377	S14 E48	183	500	1.0
79	10	17	16377	S14 E35	181	600	1.5
79	10	18	16377	S14 E22	181	500	1.5
79	10	19	16377	S14 E12	180	900	2.0
79	10	21	16377	S15 W17	182	700	1.5
79	10	22	16377	S15 W30	180	500	1.0
79	10	23	16377	S15 W44	181	500	1.0
79	10	24	16377	S16 W57	181	300	1.0
79	10	25	16377	S15 W70	182	300	1.0

SUNSPOT DATA

MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
20978	S14 E35	184	AP	2				
	S13 E30				M	0	1	AXX
	S14 E20				R	30	2	DRO
20991	S16 W07	174	(AP)	2	M	0	1	AXX

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HALE REGION 16374 CMP DATE 21.8 RETURN OF PART OF REGION 16306 AND NEW ROTATIONS 3 AND 1

			CALCIUM PLAGE DATA					SUNSPOT DATA							
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	10	15	16374	S28 E80	164	1000	1.5	20972	S25 E71	175	(X)	1				
79	10	16	16374	S27 E66	165	1300	2.5	20972	S25 E60	173	AP	2	M	40	1	HSX
79	10	17	16374	S27 E53	163	1800	3.0	20972	S27 E50	169	(B)	2	M	20	1	HRX
79	10	18	16374	S26 E40	163	2700	3.0		S26 E45				M	10	3	BXO
79	10	19	16374	S26 E27	165	3100	3.0									
79	10	21	16374	S26 E01	164	2600	3.0	20992	S27 E00	167	(B)	2	M	0	1	AXX
79	10	22	16374	S26 W13	163	2200	2.5	20992	S28 W11	164	(B)	2	M	10	3	BXO
79	10	23	16374	S27 W25	162	2500	3.0	20992	S27 W25	164	(B)	3	R	20	4	BXO
79	10	24	16374	S27 W38	162	2800	3.0	20992	S28 W38	165	(B)	3	R	220	11	DRO
79	10	25	16374	S27 W51	163	2400	3.0	20992	S28 W52	165	(B)	3				
79	10	26	16374	S27 W64	163	2200	3.0	20992	S28 W66	165	(B)	3	M	90	5	DRO
79	10	27	16374	S28 W77	162	1900	3.0									

HALE REGION 16375 CMP DATE 21.9 RETURN OF PART OF REGION 16305 ROTATION 2

			CALCIUM PLAGE DATA					SUNSPOT DATA							
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	10	15	16375	S12 E78	166	600	1.0									
79	10	16	16375	S11 E66	165	400	1.0	20974	S13 E71	162	AP	3				
79	10	17	16375	S11 E53	163	600	1.5	20974	S13 E59	160	(AP)	3				
79	10	18	16375	S12 E39	164	600	1.5	20974	S13 E46	160	(AP)	3				
79	10	19	16375	S12 E28	164	900	1.5		S12 E35				R	50	1	HSX
79	10	21	16375	S13 E02	163	600	1.5		S09 E09				M	20	4	BXO
79	10	22	16375	S13 W12	162	500	1.5									
79	10	23	16375	S13 W26	163	400	1.5									
79	10	24	16375	S13 W40	164	300	1.0									
79	10	25	16375	S13 W53	165	200	1.0									
79	10	26	16375	S13 W66	165	200	1.0									

HALE REGION 16382 CMP DATE 22.2

			CALCIUM PLAGE DATA					SUNSPOT DATA							
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	10	18	16382	S21 E45	158	100	2.5									

HALE REGION 16391 CMP DATE 22.3

			CALCIUM PLAGE DATA					SUNSPOT DATA							
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	10	24	16391	N18 W33	157	100	1.0									

HALE REGION 16378 CMP DATE 22.7 RETURN OF REGION 16310 ROTATION 2

			CALCIUM PLAGE DATA					SUNSPOT DATA							
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	10	16	16378	N30 E73	158	700	1.0									
79	10	17	16378	N30 E60	156	600	1.0									
79	10	18	16378	N30 E48	155	700	1.0									
79	10	19	16378	N31 E37	155	900	1.0									
79	10	21	16378	N30 E12	153	700	1.0									
79	10	22	16378	N30 E00	150	600	1.0									
79	10	23	16378	N30 W13	150	600	1.0									
79	10	24	16378	N30 W25	149	500	1.0									
79	10	25	16378	N31 W37	149	500	1.0									
79	10	26	16378	N31 W50	149	500	1.0									
79	10	27	16378	N30 W62	147	300	1.0									

HALE REGION 16379 CMP DATE 23.3 RETURN OF REGIONS 16314 AND 16321 ROTATION 2

			CALCIUM PLAGE DATA					SUNSPOT DATA							
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	10	16	16379	S11 E83	148	2000	2.5									
79	10	17	16379	S10 E70	146	3000	4.0	20982	S08 E69	150	(B)	2	M	60	1	HSX
79	10	18	16379	S10 E57	146	3900	3.5	20986	S10 E53	153	(B)	3	M	100	8	DAI
79	10		16379					20987	S12 E68	138	(BP)	4	M	300	8	DAI
79	10	19	16379	S11 E46	146	4700	3.5		S08 E42				R	100	9	DAO
79	10		16379						S11 E58				R	410	17	DKO

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HALE REGION 16379 (CONT)

				CALCIUM PLAGE DATA				SUNSPOT DATA							
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H STA	AREA	CNT	CLASS
79	10	21	16379	S12 E20	145	5000	3.5	20986	S09 E13	154	(BP)	3			
79	10		16379					20987	S13 E27	140	(B)	4 M	390	13	EKO
79	10	22	16379	S13 E07	143	5500	3.0	20987	S12 E12	141	(BY)	5 M	410	19	EHI
79	10	23	16379	S13 W07	144	5700	3.5	20987	S12 W03	142	(B)	5 R	340	24	EKI
79	10	24	16379	S13 W21	145	5600	3.0	20987	S12 W15	142	(B)	5 R	420	46	FKI
79	10		16379					21008	S10 W27	154	(B)	3 R	40	1	CRO
79	10	25	16379	S13 W34	146	5600	3.5	20987	S12 W28	141	(B)	5			
79	10		16379					21008	S10 W45	158	(AP)	2			
79	10		16379					21009	S17 W14	127	(B)	2			
79	10	26	16379	S14 W48	147	5600	3.0	20987	S12 W44	143	(BP)	4 M	270	10	ESO
79	10		16379					21009	S19 W29	128	(B)	2 M	10	4	BXO
79	10	27	16379	S14 W60	145	6000	3.0	20987	S10 W55	141	(BP)	5 M	260	8	ESO
79	10	28	16379	S14 W74	145	5000	3.0	20987	S10 W68	141	(BP)	3 M	240	2	CSO
79	10	29	16379	S15 W86	145	3000	2.5								
79	10	30	16379	S16 W90	136	600	1.0								

HALE REGION 16381 CMP DATE 24.8 RETURN OF REGIONS 16315 AND 16320 ROTATION 2

				CALCIUM PLAGE DATA				SUNSPOT DATA							
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H STA	AREA	CNT	CLASS
79	10	17	16381	N15 E88	128	1300	1.0								
79	10	18	16381	N19 E78	125	3000	1.5	20988	N23 E81	125	(AP)	2 M	60	1	HSX
79	10	19	16381	N20 E67	125	3000	2.0		N25 E70			R	60	1	HSX
79	10	21	16381	N20 E41	124	4000	2.5	20988	N23 E43	124	(AP)	3 M	30	1	HSX
79	10		16381					20993	N10 E31	136	(AP)	2 M	0	1	AXX
79	10	22	16381	N20 E28	122	4800	2.5	20988	N23 E31	122	(AP)	4 M	40	2	CSO
79	10		16381					20999	N18 E18	135	(AP)	1			
79	10		16381					20998	N06 E33	120	(AF)	2 M	30	1	HSX
79	10	23	16381	N20 E14	123	4100	2.5	20988	N22 E15	124	(BP)	4 R	60	5	CRO
79	10		16381					21002	N21 E13	126	(AP)	3			
79	10	24	16381	N20 E00	124	4500	2.5	20988	N23 E04	123	(AP)	4 R	20	3	CRO
79	10	25	16381	N20 W13	125	4500	2.5	20988	N23 W06	119	(B)	3			
79	10	26	16381	N20 W26	125	4700	2.5	20988	N23 W22	121	(AP)	2 M	10	1	AXX
79	10	27	16381	N20 W39	124	4700	2.5	20988	N23 W33	119	(B)	2			
79	10	28	16381	N20 W53	124	4500	2.5								
79	10	29	16381	N20 W65	124	4100	2.5								
79	10	30	16381	N22 W78	124	1700	2.0								

HALE REGION 16403 CMP DATE 25.5

				CALCIUM PLAGE DATA				SUNSPOT DATA							
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H STA	AREA	CNT	CLASS
79	10	29	16403	S10 W56	115	200	2.0		S09 W58			H	0	1	AXX
79	10	30	16403	S09 W69	115	400	1.0								
79	10	31	16403	S10 W82	115	300	1.0								

HALE REGION 16383 CMP DATE 26.0 RETURN OF REGION 16318 ROTATION 3

				CALCIUM PLAGE DATA				SUNSPOT DATA							
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H STA	AREA	CNT	CLASS
79	10	21	16383	N15 E56	109	200	1.0								
79	10	22	16383	N14 E43	107	300	1.0								
79	10	23	16383	N14 E29	108	100	1.5								
79	10	24	16383	N14 E16	108	100	2.0								
79	10	25	16383	N14 E04	108	100	1.5								
79	10	26	16383	N14 W09	108	100	2.0								
79	10	27	16383	N14 W23	108	100	1.0								
79	10	28	16383	N14 W37	108	200	1.5								

HALE REGION 16385 CMP DATE 26.9 RETURN OF REGIONS 16322 AND 16323 ROTATION 2

				CALCIUM PLAGE DATA				SUNSPOT DATA							
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H STA	AREA	CNT	CLASS
79	10	21	16385	S26 E66	99	1200	1.5								
79	10	22	16385	S27 E53	97	900	1.0								
79	10	23	16385	S27 E39	98	900	1.0								
79	10	24	16385	S27 E26	98	800	1.5								
79	10	25	16385	S28 E14	98	800	1.0								
79	10	26	16385	S30 E02	97	800	1.0								
79	10	27	16385	S30 W10	95	800	1.0								
79	10	28	16385	S30 W24	95	800	1.0								

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HALE REGION 16385 (CONT)

			CALCIUM		PLAGE	DATA		SUNSPOT DATA							
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	10	29	16385	S30 W35	94	500	1.0									
79	10	30	16385	S30 W49	95	400	1.0									
79	10	31	16385	S30 W62	95	400	1.0									

HALE REGION 16386 CMP DATE 27.3 RETURN OF REGION 16325 ROTATION 3

			CALCIUM		PLAGE	DATA		SUNSPOT DATA							
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	10	21	16386	N18 E72	93	2800	3.5	20996	N11 E67	100	(AP)	3	M	60	2	CSO
79	10	22	16386	N18 E60	90	3200	3.0	20996	N10 E54	99	(BP)	2				
79	10	23	16386	N18 E46	91	3300	3.0	20996	N10 E41	98	(AP)	3	R	30	1	HRX
79	10		16386					21003	N15 E37	102	(AP)	2				
79	10	24	16386	N19 E32	92	3200	2.5	20996	N10 E27	100	(B)	3	R	20	1	HRX
79	10	25	16386	N18 E20	92	3200	2.0	20996	N10 E14	99	(AP)	2				
79	10		16386					21010	N16 E18	95	(B)	3				
79	10		16386					21011	N19 E27	86	(AP)	2				
79	10	26	16386	N18 E07	92	3500	2.0	21010	N16 E03	96	(B)	2				
79	10	27	16386	N18 W08	93	3500	2.0	21010	N16 W11	97	(BP)	3	M	20	5	BXO
79	10	28	16386	N18 W23	94	3500	2.5	21010	N16 W23	96	(B)	3	M	40	10	CSO
79	10	29	16386	N17 W36	95	3500	2.0	21010	N17 W36	96	(B)	3	M	80	8	DAO
79	10	30	16386	N16 W50	96	3500	2.5	21010	N16 W50	97	(B)	4				
79	10	31	16386	N15 W63	96	3500	2.5	21010	N15 W63	97	(B)	4	H	60	8	DAO
79	11	1	16386	N15 W76		2600	2.5	21010	N15 W75		B	2				

HALE REGION 16384 CMP DATE 27.4 RETURN OF REGION 16324 ROTATION 3

			CALCIUM		PLAGE	DATA		SUNSPOT DATA							
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	10	21	16384	S18 E75	90	2000	2.5	20994	S23 E69	98	(AP)	3	M	80	1	HSX
79	10		16384					20995	S14 E70	97	(AP)	3	M	40	3	DRO
79	10	22	16384	S20 E62	88	2000	3.5	20994	S23 E59	94	(AP)	3	M	80	1	HSX
79	10		16384					20995	S14 E57	96	(B)	3	M	50	2	CSO
79	10	23	16384	S20 E48	89	3000	3.5	20994	S23 E46	93	(AP)	3	R	60	1	HSX
79	10		16384					20995	S13 E44	95	(BP)	3	R	60	3	CRO
79	10		16384					21004	S19 E47	92	(AF)	3				
79	10	24	16384	S19 E35	89	4000	3.5	20994	S23 E33	94	(AP)	4	R	90	2	CSO
79	10		16384					20995	S12 E27	100	(AP)	3	R	50	8	CRO
79	10		16384					21004	S19 E33	94	(B)	4	R	290	23	DAI
79	10	25	16384	S19 E22	90	4400	4.0	20994	S23 E21	92	(AP)	4				
79	10		16384					20995	S12 E14	99	(AP)	4	B	110	11	DXX
79	10		16384					21004	S18 E19	94	(B)	5				
79	10	26	16384	S19 E09	90	5600	3.5	20994	S23 E09	90	(BP)	3				
79	10		16384					20995	S12 E01	98	(AP)	3	M	40	2	HSX
79	10		16384					21004	S18 E05	94	(D)	5	M	470	32	EKI
79	10	27	16384	S20 W04	89	6000	3.5	20994	S22 W04	90	(AP)	4	M	40	1	HSX
79	10		16384					20995	S12 W12	98	(AP)	3	M	30	1	HSX
79	10		16384					21004	S18 W07	93	(B)	5	M	490	32	EKI
79	10	28	16384	S20 W18	89	5800	3.5	20994	S22 W17	90	(AP)	3	M	80	11	DSO
79	10		16384					20995	S12 W25	98	(AP)	3	M	30	1	HSX
79	10		16384					21004	S18 W21	94	(B)	4	M	680	29	EKI
79	10	29	16384	S20 W30	89	6100	3.0	20994	S22 W30	90	(AP)	3	M	140	12	DAO
79	10		16384					20995	S12 W38	98	(AP)	2				
79	10		16384					21004	S18 W34	94	(B)	4	M	510	16	EKI
79	10	30	16384	S20 W44	90	5500	3.0	20994	S22 W42	89	(AP)	4	R	50	1	HSX
79	10		16384					20995	S12 W51	98	(AP)	3	R	30	2	HRX
79	10		16384					21004	S18 W47	94	(B)	4	R	280	18	ESI
79	10	31	16384	S20 W57	90	4800	3.0	20994	S22 W55	89	(AP)	4				
79	10		16384					21004	S18 W60	94	(B)	4	H	60	10	CSO
79	11	1	16384	S20 W70		3800	3.0	20994	S20 W69		(BP)	3				
79	11		16384					21004	S17 W79		AP	2				

HALE REGION 16394 CMP DATE 27.9

			CALCIUM		PLAGE	DATA		SUNSPOT DATA							
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	10	25	16394	N15 E31	81	100	1.0									
79	10	26	16394	N15 E17	82	100	1.0									
79	10	27	16394	N15 E03	82	300	1.5	21014	N15 E03	83	(B)	3				
79	10	28	16394	N15 W13	84	600	2.5	21014	N15 W11	84	(B)	3				
79	10	29	16394	N15 W25	84	800	2.5	21014	N16 W25	85	(B)	3				
79	10	30	16394	N15 W38	84	1000	3.0	21014	N15 W37	84	(B)	4				
79	10	31	16394	N15 W50	83	1000	2.5	21023	N11 W52	86	(B)	3	H	20	7	BXO
79	11	1	16394	N16 W64		800	1.5									

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HALE REGION 16400 CMP DATE 28.0

						CALCIUM PLAGE DATA						SUNSPOT DATA						
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	10	28	16400	N36 W10	81	200	2.0	21015	N36 W05	78	(AF)	2	M	10	3	BXO
79	10	29	16400	N36 W21	80	200	1.5		N35 W25				H	10	1	AXX
79	10	30	16400	N36 W34	80	200	2.0									
79	10	31	16400	N36 W47	80	500	2.0									
79	11	1	16400	N37 W59		500	2.0									

HALE REGION 16407 CMP DATE 28.6

						CALCIUM PLAGE DATA						SUNSPOT DATA						
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	11	1	16407	N18 W54		200	2.0									

HALE REGION 16387 CMP DATE 28.8 RETURN OF REGION 16351 ROTATION 2

						CALCIUM PLAGE DATA						SUNSPOT DATA						
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	10	22	16387	N13 E80	70	600	1.0									
79	10	23	16387	N13 E66	71	400	1.0									
79	10	24	16387	N13 E53	71	200	1.0									
79	10	25	16387	N13 E40	72	300	1.0									
79	10	26	16387	N14 E27	72	300	1.5									
79	10	27	16387	N14 E14	71	200	1.0									

HALE REGION 16393 CMP DATE 29.2

						CALCIUM PLAGE DATA						SUNSPOT DATA						
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	10	24	16393	N25 E58	66	100	1.0									
79	10	25	16393	N25 E46	66	200	1.0									
79	10	26	16393	N24 E33	66	200	1.0									
79	10	27	16393	N24 E20	65	200	1.0									
79	10	28	16393	N23 E05	66	100	1.0									
79	10	29	16393	N23 W08	67	200	1.0									
79	10	30	16393	N25 W21	67	300	1.0									
79	10	31	16393	N24 W34	67	200	1.0									
79	11	1	16393	N25 W47		200	1.0									

HALE REGION 16388 CMP DATE 29.9

						CALCIUM PLAGE DATA						SUNSPOT DATA						
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	10	23	16388	S17 E80	57	1200	1.5									
79	10	24	16388	S16 E67	57	1500	2.0									
79	10	25	16388	S17 E55	57	1800	2.5									
79	10	26	16388	S17 E42	57	2000	3.0									
79	10	27	16388	S17 E30	55	2000	3.5	21013	S19 E23	63	(AP)	2	M	0	1	AXX
79	10	28	16388	S17 E16	55	2000	2.5									
79	10	29	16388	S17 E03	56	2000	2.0									
79	10	30	16388	S16 W11	57	1700	2.0									
79	10	31	16388	S17 W24	57	1700	2.0									
79	11	1	16388	S17 W37		2200	2.0	21026	S17 W46		(AP)	3				
79	11	2	16388					21026	S17 W59		(AP)	3				
79	11	3	16388	S17 W62		2300	1.5									

HALE REGION 16389 CMP DATE 30.4

						CALCIUM PLAGE DATA						SUNSPOT DATA						
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	10	23	16389	N27 E86	51	1000	3.5	21005	N26 W85	224	(AP)	2				
79	10	24	16389	N27 E73	51	1000	3.5	21005	N26 E70	57	(AP)	4	R	380	4	HKX
79	10	25	16389	N27 E61	51	1100	3.5	21005	N26 E58	55	(BP)	4				
79	10	26	16389	N27 E48	51	1700	3.0	21005	N26 E46	53	(BP)	4	H	130	3	CSO
79	10	27	16389	N27 E35	50	1700	3.0	21005	N26 E34	52	(AP)	4	H	90	3	HSX
79	10	28	16389	N26 E21	50	1700	2.5	21005	N26 E20	53	(AP)	4	H	100	4	CSO
79	10	29	16389	N26 E09	50	1400	2.5	21005	N27 E08	52	(AP)	2	H	80	3	DSO
79	10	30	16389	N27 W04	50	1400	2.5	21005	N26 W05	52	(AP)	4				
79	10	31	16389	N26 W17	50	1500	2.0	21005	N26 W18	52	(AP)	4				

CONTD

REGIONS OF SOLAR ACTIVITY

OCTOBER 1979

HALE REGION 16389 (CONT) CMP DATE 30.4

				CALCIUM PLAGE DATA				SUNSPOT DATA							
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	11	1	16389	N25 W30		1100	2.0	21005	N26 W31		AP)	3	B	30	2	A
79	11	2	16389					21005	N23 W40		(B)	3	B	20	6	B
79	11	3	16389	N24 W55		1300	2.0	21005	N25 W55		AP	3	B	10	1	A
79	11	4	16389	N23 W67		1300	3.0	21005	N26 W65		(AP)	3	B	10	1	A
79	11	5	16389	N21 W81		1000	3.0	21035	N21 W70		AP	1				

HALE REGION 16414 CMP DATE 31.0

				CALCIUM PLAGE DATA				SUNSPOT DATA							
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	11	5	16414	S05 W75		400	1.5									

HALE REGION 16392 CMP DATE 31.1 RETURN OF REGION 16337 ROTATION 2

				CALCIUM PLAGE DATA				SUNSPOT DATA							
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	10	24	16392	N14 E82	42	600	1.0									
79	10	25	16392	N14 E70	42	900	1.5									
79	10	26	16392	N14 E57	42	1000	2.5									
79	10	27	16392	N15 E44	41	900	2.0									
79	10	28	16392	N15 E30	41	900	2.0									
79	10	29	16392	N16 E18	41	800	2.0									
79	10	30	16392	N16 E05	41	800	2.0									
79	10	31	16392	N15 W09	42	700	1.5									
79	11	1	16392	N15 W22		800	1.5									
79	11	3	16392	N13 W47		500	1.0									
79	11	4	16392	N13 W60		400	1.0									

DAILY CALCIUM PLAGE INDEX

OCTOBER 1979

YR	MO	DAY	INDEX	YR	MO	DAY	INDEX	YR	MO	DAY	INDEX
79	10	1	48.6	79	10	11	60.6	79	10	21	75.8
79	10	2	51.0	79	10	12	59.6	79	10	22	71.2
79	10	3	*	79	10	13	*	79	10	23	68.9
79	10	4	*	79	10	14	*	79	10	24	66.1
79	10	5	48.5	79	10	15	62.1	79	10	25	62.7
79	10	6	55.3	79	10	16	63.2	79	10	26	61.8
79	10	7	60.6	79	10	17	75.2	79	10	27	62.8
79	10	8	61.3	79	10	18	82.3	79	10	28	60.8
79	10	9	66.8	79	10	19	80.6	79	10	29	56.9
79	10	10	60.6	79	10	20	*	79	10	30	56.6
								79	10	31	58.5

* NO OBSERVATIONS

NOTE: NO CALCIUM SPECTROHELIOGRAMS WERE SECURED AT MT WILSON OBSERVATORY ON OCTOBER 3, 4, 13, 14 AND 20, 1979.
NO SUNSPOT OBSERVATIONS WERE MADE AT MT WILSON OBSERVATORY ON OCTOBER 14, 19, AND 20, 1979.

REGION 16361 is a new plage in the location of old plage 16277.
The northern portion of new plage 16341 is located in the location of old REGION 16278.
The leading portion of REGION 16344 is new plage.
The northern portion of REGION 16357 is new plage.
REGION 16365 is a new plage in the location of old plage 16295.
REGION 16368 probably includes remnants of old plage 16304.
Old REGION 16307 had a resurgence on the disk after C.M. Therefore, the age of new REGION 16373 is two.

SUDDEN IONOSPHERIC DISTURBANCES

OCTOBER 1979

DAY	UNIVERSAL TIME START	END	MAX	IMP	WIDE SPREAD INDEX	NUMBER OF STATION REPORTS BY TYPE SWF	SCNA	SEA	SPA	LF-SPA	SES	SFD	KNOWN FLARE	McMATH REGION
01	0126	0325	0136	1-	1				1				*	
01	0348	0430	0400	1-	3				2				*	
01	0556	0708	0604	2	5	1			2		1		0600E	16324
01	0720	0753	0730	1-	5	1			3				NF	
01	0800	0829	0806	1-	3				2				0805	16315
01	0844E	0919D	0850	1-	3				2				0846	16315
01	0920	1040	0929	2+	5	3		2	4		2		0924	16315
01	1135	1155	1144	1-	5	1		1	2		2		1136	16315
01	1423	1544	1440	1-	5			2	1		1		NF	
01	1755	1920	1821	1-	5				1		8		1754	16336
01	1928	1933D	1933	1-	1						1		1926	16315
02	0150	0252	0155	1-	3				2				*	
02	0259	0328	0305	1-	3				2				*	
02	0439	0515	0450	1-	3				2				*	
02	0937	1050	0942	2+	5	4		4	4		3		0937E	16337
02	1212	1241	1218	1-	1			1					1212	16337
02	1440	1650	1508	1-	3			1	1				1442	16336
02	1623	1651	1631	1-	1						1		1620	16337
02	1829	1830D	1830	1-	1						1		1827	16315
02	1854	1907D	1907	1-	1						1		1850	16315
02	2138	2155	2141	1-	1						1		2139	16322
02	2200	2308	2209	1-	5				2		1		2159	16336
03	0104	0125	0113	1-	1				1				*	
03	0832	0930	0843	2	5	3		4	3		2		0834	16324
03	1220	1223D	1223	1-	3			1	1				1215E	16337
03	1258	1405	1308	1-	3				2		1		1259	16324
03	2109	2203	2118	1-	5				2		4		NF	
04	0740	0800	0746	1-	5	1			2		1		NF	
04	0812	0910	0830	1-	5	1		1	3				0828E	16344
04	1241	1335	1302	1-	5	3		4	2		3		1242E	16324
04	1333	1336D	1336	1-	1						1		1332	16324
04	1356	1409D	1409	1-	5				1		3		NF	
04	1422	1455	1430	1	5	3		5	2		13		1423	16344
04	1546	1900	1610	2	5	2		2	2		12		1554	16344
04	1635	1645	1745	1	3						2		1640	16315
04	1926	2015	1931	1-	5						4		1928E	16344
04	2105	2236	2120	1	5				3		4		2103	16341
05	0014	0050	0024	1-	3				2				*	
05	0131	0159	0148	1-	1				1				*	
05	0444	0526	0452	1-	1				1				*	
05	0551	0756	0623	1	3	1			2				*	
05	0734E	0800	0739	1-	1				1				*	
05	0824	0900	0834	1-	5	1		5	3		1		NF	
05	1024	1107	1038	1-	5	1		4	4		3		1040E	16341
05	1140	1411	1210	2	5	3		5	4		5		*	
05	1423	1459	1433	1-	5	1		2	1		9		1410E	16324
05	1715	1815	1740	1-	5				1		7		^NF	
05	1844	1907	1846	1-	1						1		1840	16324
05	2022	2025D	2025	1-	1						1		2020	16325
05	2058	2116	2101	1-	1						1		2057	16343
05	2157	2254	2215	1-	5				2		1		2154	16324
05	2227	2231D	2231	1-	1						1		2226	16341
06	0309	0356	0311	1-	3	1			1				*	
06	0502	0553	0508	1-	3				2				*	
06	0624	0740	0634	2	5				2		1		0625E	16341
06	0656	0727	0703U	1-	1			1					0700	16344
06	0743	0850	0757	2+	5	2		4	3		2		0743	16341
06	1110	1140	1118	1-	5	2		2	2		3		1109	16344
06	1454	1525	1511	1-	5			1			1		1454	16344
06	1522	1550	1532	1-	5			1	1		2		1529E	16344
06	1752	1823	1758	1-	1						1		1754	16341
06	1957	2003D	2003	1-	1						1		1955	16350
06	2028	2107	2033	1-	1						1		2026	16341
07	0808	0850	0818	1+	5	1		3	3		2		0755	16341
07	0905	1012	0916	1-	3			2					*	
07	1114	1132	1117	1-	1			1					*	
07	1147	1205	1153	1-	5			2	2		2		1148E	16346
07	1320	1359	1333U	1-	1			1					1319	16336
07	1405	1612	1425	1+	5	4		6	2		14		1405	16336
07	1655	1717	1707	1-	5				1		7		1656	16346
07	2107	2200	2124	1-	5				2		1		2058	16346
07	2252	0013	2300	1	5				2		1		2251	16346
08	0037	0035	0043	1-	3	1			2				0036	16346
08	0115	0141	0124	1-	1				1				*	
08	0143	0221	0159	1-	1				1				*	
08	0221	0309	0231	1-	1				1				*	
08	0401	0443	0406	1-	3				2				*	
08	0446E	0538	0448	1-	1				1				*	
08	0812	0835	0820	1-	5			1	3				0815	16346
08	1155	1252	1213	1-	5				1		2		1200E	16346
08	1535	1616	1550	1-	5				1		9		1535	16346
08	1640	1721	1645	1-	5						8		1637	16346
08	1858	1901D	1901	1-	1						1		1853	16346
08	1927	2006	1945	1-	5				1		7		1933	16346
08	1954	2020	1957	1-	1						1		1954	16359

SUDDEN IONOSPHERIC DISTURBANCES

OCTOBER 1979

	UNIVERSAL TIME				WIDE SPREAD INDEX	NUMBER OF STATION REPORTS BY TYPE							KNOWN FLARE	NOAA REGION
DAY	START	END	MAX	IMP		SWF	SCNA	SEA	SPA	LF-SPA	SES	SFD		
09	0203	0254	0211	1-	3				2				*	
09	0329	0413	0347	1-	1				1				*	
09	0656	0735	0704	2	5				4		1		0703	16344
09	1645	1730	1704	1-	1				1		1		1646	16357
09	2124	2212	2134	1-	5				2		1		2122	16344
10	0300	0429	0311	1+	1				1				*	
10	1012	1125	1024	1-	5	1			4		1		1007	16357
10	1540	1636	1542	1-	5			2	1		2		1540	16357
11	0348	0353D	0353	1-	1				1				*	
11	0646	0731	0701	1-	3				2				0651	16350
11	2058	2110D	2110	1-	1						1		2050	16341
11	2125	2243	2154	1-	1				1				2123	16363
11	2257	2323	2305	1-	1				1				2253	16343
11	2325	0016	2336	1-	5				3				NF	
12	0253	0314	0301	1-	1				1				*	
12	0314	0350	0323	1-	1				1				*	
12	0420	0510	0434	1-	3				2				*	
12	0516	0555	0537	1-	3				2				*	
12	1047	1148	1120	1-	3			3					1042E	16357
12	1207	1220	1212	1-	5			1	2		1		1206	16350
12	1829	1930	1836	1-	3						2		1827	16343
12	2049	2209	2110	1-	5				2		2		2035	16357
12	2326	0200	2358	1+	1				1				2330E	16344
13	0856	0934	0912	1-	3			3					0855E	16344
13	1200	1215	1208	1-	1			1					1150	16344
13	1315	1408	1334	1+	5	2		6	2		3		1317	16357
13	1442	1614	1511	1-	5	1			1		4		1443	16343
13	1732	1746	1736	1-	1	1							1729E	16343
13	2002	2200	2009	1-	5						4		2000	16357
14	0019	0120	0023	1	5				3		1		*	
14	0118	0325	0159	2	5	1			2		1		0120	16344
14	0420	0506	0426	1-	3				2				*	
14	0649	0726	0700	1	5				4				0651	16357
14	1316	1335	1322	1-	5	1		2	2		2		1314	16373
14	1540	1624	1547	1-	5				1		2		1534	16366
14	1721	1745	1730	1-	5				1	1	12		1710	16373
14	2328	2348	2331	1-	1				1				2323	16357
15	0015	0138	0048	1+	5	1			2		1		0012	16373
15	1603	1720	1621	1-	1						1		1556	16373
15	1903	1955	1907	1-	5						6		1900E	16366
15	2005	2022	2009	1-	1						1		2007	16373
15	2153	2222	2200	1-	1				1				2154	16373
16	0631	0711	0634	1-	3				3				*	
16	1205	1245	1216	1+	5	2		5	2		1		1204	16357
16	2058	2108	2100	1-	1						1		2058	16372
17	0045	0152	0108	2	3				2				0038	16378
17	0652	0850	0708	2+	5	4		4	4		2		0652	16378
17	0800	0825	0807	1	1			1	1				0755	16379
17	1136	1200	1142	1-	5			1	2		2		1136	16366
17	1247	1303D	1303	1-	5	1		3	2		2		1244	16366
17	1317	1330	1320	1-	5			2	2		2		NF	
17	1434	1500	1439	1-	5			2	2		10		1432	16366
17	1532	1600	1542	1-	5				1		2		1538	16379
17	1603	1743	1622	1	5	1		2	2		13		1553	16366
17	1703	1815	1718	1-	1						1		1701	16379
17	2155	2230	2201	1-	3				2				2156	16366
18	0021	0057	0034	1-	3				3				0028E	16373
18	0130	0146	0134	1-	1				1				*	
18	0236	0337	0244	1+	3	1			3				NF	
18	0522	0610	0541	1-	3				3				NF	
18	0913	1028	0927	1+	5	2		5	4		3		0906	16373
18	0944	1000	0952	1-	5	1		1	2		1		0950E	16366
18	1007	1025	1012	1-	5	1		1	2		1		1000	16373
18	1353	1433	1400	1-	1				1		1		1350E	16373
18	2116	2137	2122	1-	1				1				*	
18	2136	2218	2157	1	1				1				*	
18	2159	2241	2210	1-	5				1		3		*	
19	0021	0105	0040	1+	3	1			3		1		*	
19	0418	0616	0424	3	5	1			3		1		0419	16373
19	1101	1145	1115	1	5	3		4	3		3		1100	16366
19	1120E	1155D	1155	1-	1			1					1120E	16373
19	1156	1305	1204	2	5	6		6	3		3		1154	16373
19	1621	1725	1633	1-	5				1		10		1620	16378
19	1942	2115	1948	1-	5						5		1940	16373
19	2314	0015	2323	1+	5			1	2		1		2316E	16373
20	0258	0359	0310	1	3	1			3				NF	
20	0553	0800	0600	2	5	1		1	3				0554E	16373
20	0802	0855	0822	1-	1				1				0800	16366
20	0946	1020	0955	1-	5	1		3	3		2		0944	16373
20	1152	1315	1209	2	5	4		5	4		3		1151	16373
20	1441	1505	1450	1-	5	1		3	2	1	10		1439	16373
20	1520	1535	1527	1-	5	1		1	2	1	8		1518	16373

SUDDEN IONOSPHERIC DISTURBANCES

OCTOBER 1979

DAY	UNIVERSAL TIME				WIDE SPREAD INDEX	NUMBER OF STATION REPORTS BY TYPE							KNOWN FLARE	McMATH REGION
	START	END	MAX	IMP		SWF	SCNA	SEA	SPA	LF-SPA	SES	SFD		
20	1826	1933	1837	1-	5	1			1	1	11		1824	16373
20	2003	2052	2013	1-	5						3		2005	16357
20	2059	2134	2107	1-	5				2		3		2052	16373
20	2219	2320	2226	1-	5				2		2		2214	16381
21	0457	0614	0506	1	3	1			3				0458	16373
21	0636	0758	0706	1-	3				2				0635E	16373
21	1150	1200	1155	1-	5	1		1	2		1		NF	
21	1215	1303	1221	1	5	4		4	4		4		1216	16357
21	1327	1453	1341	1+	5	4		4	2		10		1324	16368
21	1844	1905	1851	1-	5						4		1846	16379
21	2114	2201	2132	1-	5				2		4		2106	16368
22	0055	0202	0113	1-	3				3				0054	16368
22	0628	0658	0631	1-	3				3				0632E	16373
22	0920	0940	0930	1-	3	1		1	1				0921	16373
22	1037	1050	1042	1	1				1				1036	16373
22	1542	1550	1546	1-	5	1		1	1		12		1536	16363
22	1718	1754	1724	1-	5			1			1		1718	16366
22	1819	1916	1830	1-	5				1		13		1808	16366
22	1900	1915	1907	1-	1						1		1904	16373
22	2030	2220	2047	1-	1						1		2030	16386
23	0422	0448	0430	1-	3				2				*	
23	0504	0545	0512	1-	3				2				*	
23	0706	0743	0714	1-	1				1				*	
23	1625	1730	1643	1-	1				1		1		1625	16379
24	1553	1700	1607	1-	5						6		1553	16374
24	1843	1905	1847	1-	1						1		1840	16373
25	0329	0351	0332	1-	1				1				*	
25	0454	0622	0459	1-	3				2				*	
25	0521	0621	0536	1-	3				2				*	
25	0700E	0808	0713	1-	5			1	3		1		*	
25	1639	1730	1647	1-	5						6		1631	16384
25	1848	1940	1857	1	5						10		1847	16390
25	2048	2124	2056	1-	5				2		5		2041	16384
25	2324	2400	2333	1-	5				3		1		2324	16384
26	0306	0355	0317	1-	1				1				*	
26	0432	0551	0503	1-	1				1				*	
26	0616	0638	0619	1-	1				1				*	
26	1114	1125	1117	1-	3				1		1		1115E	16384
26	1438	1532	1500	1-	5	1		1	2		3		1438	16390
26	1620	1714	1636	1-	5				1		14		NF	
26	1720	1736	1723	1-	5						9		1722	16384
26	1752	1820	1805	1-	5						6		NF	
26	1932	2001	1937	1-	3						2		1928	16384
26	1947	2040	2004	1-	5				1		12		1949	16384
26	2100	2206	2113	1-	1				1				2056	16374
27	0052	0152	0105	1-	3				2				*	
27	0127	0152	0133	1-	3				2				*	
27	0722	0757	0730	1-	1				1				*	
27	1940	2032	1945	1-	5						4		1937	16398
28	1156	1256	1208	1-	3			2					*	
29	0411	0441	0423	1-	1				1				*	
29	0445	0453	0448	1-	1						1		*	
29	0504	0538	0514	1-	1				1				*	
29	1212	1530	1240	1-	3			2					1208	16396
29	1518	1538	1522	1-	1			1					1521	16379
29	1938	2003	1944	1-	5	1			1		11		1935	16399
30	0126	0215	0130	1-	3				3				0127E	16398
30	0436	0455	0444	1-	1				1				*	
30	0804	0850	0818	1-	1				1				*	
30	1107	1209	1118	1-	1				1				*	
31	0330	0430	0336	1-	3				3				*	
31	1006	1020	1009	1-	5	1		1	3	1			NF	
31	1036	1120	1055	1-	5	1		3	4		2		NF	

PERIODS OF NO OBSERVATIONS:

DATE	TIME (UT) and STATION
01	0000-2400 TM
01	0000-2400 TM-CF
	1000-1330 UM (16 kHz)
03	0000-2400 TM, 1800-2400 UM (10, 13, 16 kHz)
04	0000-2400 TM, 0000-1000 UM (10, 13, 16 kHz)
05	0000-2400 TM
06	0000-2400 TM
08-12	0000-1715 TM-CF

DATE	TIME (UT) and STATION
08	1630-1730 UM (10, 13, 16 kHz)
09	1200-1330 UM (16 kHz)
15	1200-1250 UM (10, 13 kHz)
16	1114-1455 UM (16 kHz)
18	1625-2400 TM-CF
23	1000-1300 UM (16 kHz)
28	0000-2400 TM
29	0900-1200 UM (10, 13, 16 kHz)
30	1000-1355 UM (16 kHz)
31	1640-2010 TM-CF

SUDDEN IONOSPHERIC DISTURBANCES

OCTOBER 1979

STATIONS REPORTING FOR OCTOBER 1979

AAVSO (A1, A3, A5, A19, A21, A26, A28, A31, A34, A46, A48) (SES) (A21) (SEA)
ELLENSBURG (EB) (SES)
HIRAISO (HI) (SWF)
HOBART (TA) (SEA)
HUANCAYO (HU) (SWF)
INUBO (IN) (SPA)
JULIUSRUH (JH) (SWF)
KASUAGE (KA) (SPA)
KUHLUNGSBORN (KU) (SES, SPA)
NEW JERSEY (NJ) (SES)
PANSKA VES (PU) (SWF, SEA, SES)
PRESTON (LO) (SEA)
SAO PAULO (UM) (SES, SPA)
SOFIA (SF) (SES)
SOMERTON (SO) (SWF)
ST CLOUD (SC) (SES)
TABLE MOUNTAIN (TM) (SPA, LF-SPA)
TOYOKAWA (TK) (SPA)
UPICE (UI) (SEA)
VSETIN (VS) (SEA)
ZILINA (ZL) (SEA)

SIDs BY McMATH REGION

OCTOBER 1979

DAY	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
REGION																															
16315	5	2		1																											
16322		1																													
16324	1		2	2	3																										
16325					1																										
16336	1	2					2																								
16337		3	1																												
16340							1																								
16341				1	2	4	1				1																				
16343					1						1	1	2																		
16344				4		4			2			1	2	1																	
16346							3	7																							
16350						1					1	1																			
16357									1	2		2	2	2		1					1	1								
16359								1																							
16363											1											1									
16366														1	1		5	1	1	1		2									
16368																					2	1									
16372																1															
16373														2	4			4	5	7	2	4		1							
16374																								1		1					
16378																	2		1												
16379																	3				1		1								
16381																				1											
16384																									4	4					
16386																						1									
16390																										1					
16396																													1		
16397																											1		1		
16398																															1
16399																													1		
X-RAY																															
UNKNOWN	2		1	2	2						1						1	2		1	1					2					
NO FF	2	3	1		6	2	2	5	2	1	1	4		2		1		4	1				3		4	3	3	1	3	3

SOLAR RADIO EMISSION
SPECTRAL OBSERVATIONS

OCTOBER 1979

DAY	TIMES OF OBSERVATION START UT	TIMES OF OBSERVATION END UT	STATION	EVENTS: DECIMETRIC BAND START UT	DECIMETRIC BAND END UT	DECIMETRIC BAND INT	METRIC BAND START UT	METRIC BAND END UT	METRIC BAND INT	DEKAMETRIC BAND START UT	DEKAMETRIC BAND END UT	DEKAMETRIC BAND INT	SPECTRAL TYPE
01			CULG				0000	0722	2				IS,C,DC
			CULG				0000	0135	1				IIIS
	0000	0722	CULG										
	0000	0933	MANI										
			CULG				0029.5		2	0029.5		2	IIIB
			CULG				0044		2	0044		1	IIIB
			CULG				0049	0722	1				IIIN
			CULG				0057.5	0059	3	0057.5	0059	2	IIIGG
			CULG				0135	0722					IIIN,W
			LEAR				0200.0	1017.0	2				B
			CULG				0210.5		1				IIIG
			LEAR				0239.1	0239.6	2				V
			CULG				0250	0251	3	0250	0251	1	IIIG
			CULG				0251.5		2				IIIB
			CULG				0252	0253	2	0252.5	0253	1	IIIG
			CULG				0316.5		2	0316.5		1	IIIB
			CULG				0342.5	0343	3	0342.5	0343	2	IIIG,V
			LEAR				0419.9	0423.0	2				V
			CULG				0428		2				IIIB
			CULG				0538		2				IIIB
			CULG				0550		2				IIIB
	0558	0635	WEIS				0601	1620	2				IN,DC
	0615	1600	BLEN	0615 E	1600 D	3	0615 E	1600 D	3				I,DC
	0736	0754	WEIS				0617	0720.2	2				IIIG
			CULG				0618.5	0619	2				IIIG
			CULG				0650.5	0652	3				IIIG,V
			BLEN	0722.0	0722.2	3							III,G,RS
	0747	1610	DWIN										
	0758	1627	WEIS				0809.7	0810.7	1				IIIG
			WEIS				0817.6	0819.6	2				IIIG
			WEIS				0834.3	0834.6	2				IIIG
			WEIS				0854.3	0855.6	2				IIIG
			WEIS				1146.8	1147.0	2				IIIG
			WEIS				1238.4	1238.7	1				IIIG
			WEIS				1400.6	1400.8	2				IIIB
			WEIS				1409.3	1410.3	2				IIIG
			WEIS				1538.6	1538.8	1				IIIG
			WEIS				1558.8	1559.8	1				IIIG
			PALE				1701.3	1701.5	1				III
			PALE				1911.2	2315.0	1				B
			CULG				2022	2400					IIIN,W
	2022	2400	CULG				2022	2218	1				IS,DC
			PALE				2029.5	2030.3	2				V
			CULG				2032.5	2033.5	2				IIIG
			CULG				2113		1				IIIB
	2155	2400	MANI										
			CULG				2218	2400					IS,W
			CULG				2248.5			2248.5			IIIB,W
02	0000	0722	CULG				0000	0025					IIIN,W
	0000	0108	MANI										
			CULG				0003	0012	1				I
	0139	0930	MANI										
			CULG				0231.5		1				UNCLF
			CULG				0241	0254	1				I,N
			CULG				0316	0722					IIIN,W
			CULG				0324.5	0325	1				IIIG
			CULG				0421	0422.5	2	0421.5	0422.5	1	IIIG,V
			CULG				0520	0722					IS,W
			CULG				0539	0540	2	0539.5		1	IIIG
			CULG				0549		1				IIIB
	0549	0956	WEIS				0550	1541	1				IIIN
	0621	1610	BLEN	0621 E	1610 D	2	0621 E	1610 D	2				I,DC
			CULG				0649.5	0651	1				IIIG,V
			BLEN				0652.8	0653.0	2				IIIG
			CULG				0657		1				IIIB
			BLEN	0714.2	0714.4	1	0714.2	0714.4	3				III,G
			CULG				0714.5		1				IIIG
	1002	1624	WEIS										
			BLEN				1005.8	1008.0	2				III,GG

SOLAR RADIO EMISSION
SPECTRAL OBSERVATIONS

OCTOBER 1979

DAY	TIMES OF OBSERVATION START UT	TIMES OF OBSERVATION END UT	STATION	EVENTS DECIMETRIC BAND START UT	DECIMETRIC BAND END UT	DECIMETRIC BAND INT	METRIC BAND START UT	METRIC BAND END UT	METRIC BAND INT	DEKAMETRIC BAND START UT	DEKAMETRIC BAND END UT	DEKAMETRIC BAND INT	SPECTRAL TYPE
02			BLEN				1034.6	1034.8	2				III,B
			BLEN	1103.0	1103.4	1	1103.0	1103.4	1				III,G
	0600	1600	DWIN	1402.8	1403.7	1							IIIG
			BLEN	1403.1	1404.2	2							DCIM
			BLEN	1404.0	1405.6	2	1404.0	1405.6	2				III,G
			DWIN	1444	1500	1							IV
			BLEN	1445.5	1449.5	3	1444.9	1449.5	3				III,GG
	2022	2400	CULG				2022	2100					IS,W
			CULG				2102	2337					IIIN,W
			CULG				2113		1				IIIB
			CULG				2150.5		1				IIIB
	2150	2400	MANI										
			CULG				2151.5	2152.5	2				IIIG
			CULG				2201.5	2215.5	1				UNCLF
			CULG				2320.5	2321	1				IIIG
03	0000	0930	MANI										
	0000	0721	CULG				0211.5	0212	1				UNCLF
			CULG				0216.5						IIIB,W
			CULG				0401	0633					IS,W
			CULG				0501	0502	1				UNCLF
	0600	1600	DWIN										
			CULG				0644.5	0645.5					IIIG,W
	0600	1600	WEIS				0645	1526	2				IIIN
	0623	1110	BLEN				0731.1	0731.3	2				III,G
			BLEN	0745.5	0749.7	2							I,DC
	2022	2400	CULG				2022	2400					SWF,W
	2150	2400	MANI										
			CULG				2255	2256.5	1				IIIG
04	0000	0721	CULG				0000	0320					SWF,W
	0000	0930	MANI										
			CULG				0131	0215					IS,W
			CULG				0432	0442					IS,W
			CULG				0554	0702					IS,W
	0600	1105	DWIN										
	0600	0936	WEIS										
	0943	1622	WEIS				1050.2	1052.5	3				IIIGG
			WEIS				1122	1123.5	1				IIIG
			WEIS				1158.2	1158.3	1				IIIB
	1449	1617	BLEN	1449 E	1617 D	2	1449 E	1617 D	2				I
			WEIS				1502	1502.3	1				IIIB
			WEIS				1506.4	1506.6	1				IIIG
			BLEN				1509.7	1509.8	2				III,B
			BLEN	1542.3	1543.9	3							III,GG
	1122	1600	DWIN	1542.4	1543.5	2							IIIG
			WEIS				1549.7	1551.7	1				IIIG
			WEIS				1554.5	1611.5	3				II HARM
			BLEN				1554.6	1558.6	3				II
	2042	2400	CULG				2044	2211					IS,W
			CULG				2100	2158					IIIN,W
	2125	2400	MANI										
			CULG				2330	2330.5		2330	2330.5		IIIG,W
			CULG				2333.5	2334	1				IIIG
05	0000	0737	MANI										
	0000	0721	CULG							0001			IIIB,W
			CULG				0005.5						IIIB,W
			CULG				0010.5	0011	1				IIIG
			CULG				0040.5		1				IIIB
			CULG				0200.5	0202	2	0201	0202	1	IIIG
			CULG				0214	0215.5	1	0214	0216	1	IIIG,V
			CULG				0229	0229.5					IIIG,W
			CULG							0322.5	0323		IIIB,W
			CULG				0443	0443.5					IIIG,W
			CULG				0445.5						IIIB,W
	0600	1620	DWIN	0602.5	0603.0	1							IIIG
	0602	1620	WEIS				0624.3	0626.8	3				IIIG
			CULG				0624.5						IIIB,W
			CULG				0626.5		1				IIIB

SOLAR RADIO EMISSION
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DAY	TIMES OF OBSERVATION START UT	TIMES OF OBSERVATION END UT	STATION	EVENTS: DECIMETRIC BAND START UT	DECIMETRIC BAND END UT	DECIMETRIC BAND INT	METRIC BAND START UT	METRIC BAND END UT	METRIC BAND INT	DEKAMETRIC BAND START UT	DEKAMETRIC BAND END UT	DEKAMETRIC BAND INT	SPECTRAL TYPE
05	0628	1610	BLEN	0628 E	1610 D	1	0628 E	1610 D	1				I
			BLEN	0709.2	0709.4	3	0709.2	0709.4	3				III,G
			WEIS				0709.4	0709.5	1				IIIG
			CULG				0709	0721					IS,W
			WEIS				0752.4	0752.7	2				IIIG
			BLEN	0826.7	0826.8	3							III,B
			DWIN	0826.7		2							IIIB
			WEIS				0936.5	0937.6	2				IIIG,U
			DWIN	0953.8	0956.0	1							IIIG
			BLEN	0954.3	0956.0	1							III,G
			WEIS				1046.6	1047.9	2				IIIG
			BLEN	1145.5	1147.8	2							III,G
			DWIN	1145.5	1430	2						IV	F,DCIM
			BLEN	1148.1	1152.0	3	1148.1	1152.0	3			II	
			WEIS				1148.2	1157.0	3			II	HARM
			WEIS				1148.3	1150.0	2				IIIG
			BLEN	1148.5	1415.0	3	1148.5	1415.0	3			IV	P,III
			WEIS				1200	1430	1				CONT
			WEIS				1208.0	1531.0	1				IN
			BLEN	1235.6	1235.7	2							DCIM
			BLEN	1251.0	1305.5	3							DCIM
			BLEN	1549.6	1602.9	2							DCIM
			DWIN	1549.7	1620	3						IV	P,F
	2021	2400	CULG				2116.5						IIIB,W
			CULG				2133	2221	1				IS
	2152	2400	MANI										
			CULG				2221	2317					IN,W
			CULG				2317	2400					IS,W
			CULG				2317	2400					IIIS,W
			CULG				2346		1				IIIB
06			CULG				0000	0135					IIIS,W
	0000	0720	CULG				0000	0045					IS,W
	0000	0927	MANI										
			CULG				0045	0125	1				IS
			CULG				0107		1				IIIB
			CULG				0125	0522	1				IN
			CULG				0233						IIIB,W
			CULG							0233	0233.5	1	IIIB,V
			CULG				0241.5		1	0242	0243	1	IIIB,V
			CULG				0243						IIIB,W
			CULG				0300.5	0301	2	0300.5	0301	2	IIIB,V
			CULG				0303.5	0304	2	0303.5	0304.5	2	IIIB,V
			CULG				0448.5	0449	2	0448.5	0449	1	IIIG
	0600	1600	DWIN										
	0631	1550	BLEN	0703.2	0703.8	1	0703.2	0703.8	1				IIIG
	0603	0844	WEIS				0818.0	1521.0	2				IN
			BLEN	0915	1550 D	2	0752	1550 D	2				I
	0855	1617	WEIS				1109	1520	2				IIIN
	2020	2400	CULG				2020	2058	1				IS,DC
			CULG				2033	2141					IIIN,W
			CULG				2058	2400					IN,W
	2147	2400	MANI										
			CULG				2231	2233	1				IIIG
			CULG				2309	2309.5	1				UNCLF
			CULG				2316.5						IIIB,W
07	0000	0925	MANI										
	0000	0720	CULG				0216	0216.5					IIIG,W
			CULG							0232	0232.5		IIIB,W
			CULG				0336	0355					IS,W
			CULG				0504.5						IIIB,W
			CULG				0516.5	0517	2	0516.5	0517	1	IIIB
			WEIS				0609	1300	1				IN
	0632	1545	BLEN	0632 E	1545 D	2	0632 E	1545 D	2				I
			CULG				0716						IIIB,W
			BLEN				0718.9	0719.4	1				III,G
			CULG				0719	0720					IIIG,W
	0600	1232	DWIN	0800	1000	1							IN
	0600	1616	WEIS				0950.9	0953.6	3				IIIGG

SOLAR RADIO EMISSION
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07			BLEN	0951.8	0953.3	3	0951.8	0953.3	3				III,GG
			WEIS				1048.4	1048.7	1				IIIG
			WEIS				1131.0	1131.1	1				IIIB
			WEIS				1322.4	1323.6	1				IIIG
			BLEN	1452.8	1453.4	1							DCIM
			BLEN	1534.0	1537.7	2							DCIM
	2020	2400	CULG				2020	2400					IS,W
			CULG				2024	2043	1				N,RS,DP
			CULG				2027.5	2029.5	3				IIIG,U
			CULG				2039	2050					IIIS,W
			CULG				2050	2400					IIIN,W
			CULG				2123	2124	2				IIIG
			CULG				2131		1				IIIB
			CULG				2143.5	2144.5	2	2144	2144.5	2	IIIG
	2145	2400	MANI										
			CULG				2223	2235	2				IIIG,N
			CULG				2336	2337	2				IIIG
			CULG				2352			2352			IIIB,W
08			CULG				0000	0229					IIIN,W
	0000	0720	CULG				0000	0105	1				IS
	0000	0317	MANI										
			CULG				0046	0047	2				IIIG
			CULG				0049		2				IIIB
			CULG				0050		1				IIIB
			CULG				0105	0414					IN,W
			CULG				0121		1				IIIB
			CULG				0128	0129	2	0128	0129	1	IIIG
			CULG				0140	0141	1				IIIG
			CULG				0212.5	0213	2	0212.5	0213	1	IIIG
			CULG				0414	0720					IS,W
			CULG				0452	0720					IIIN,W
	0603	0920	MANI										
	0838	1614	WEIS				0604	1531	1				IN
	0600	0822	WEIS				0609	1518	2				IIIS
	0633	1550	BLEN	0633	1550	D 2	0633	1550	D 2				I
			CULG				0634.5		1				IIIB
			BLEN				0639.5	0639.6	2				III,G
			BLEN	1042.1	1108.0	1							DCIM
	0800	1600	DWIN	1120	1230	1							IN
			BLEN				1305.1	1305.5	2				III,G
			BLEN	1326.4	1327.3	2	1321.3	1327.3	2				III,GG
			BLEN	1357.7	1358.0	1							DCIM
	2045	2400	CULG				2045	2056	1				IIIS
			CULG				2045	2140	2				IS,DC
			CULG				2056	2141					IIIS,W
			CULG				2140	2255	1				IS,DC
			CULG				2141	2400					IIIN,W
	2153	2400	MANI										
			CULG				2255	2335					IN,W
09	0000	0920	MANI										
	0000	0720	CULG				0054	0628					IIIN,W
			CULG				0124	0232					IS,W
	0600	1600	DWIN										
			CULG				0609	0720					IS,W
			CULG				0628	0720					IIIS,W
	0635	1540	BLEN	0635	1540	D 1	0635	1540	D 1				I,DC
	0608	1612	WEIS				0840	1611	2				IIIN
			WEIS				0841	1604	2				IN,DC
			BLEN	1050.7	1050.8	1							DCIM
			BLEN	1126.4	1129.4	1	1126.4	1129.4	2				III,G
			BLEN	1153.4	1153.8	2	1153.4	1154.6	2				III,GG
			BLEN				1342.0	1344.1	2				III,G
			BLEN	1407.3	1409.0	2	1407.0	1411.1	2				III,GG
	2019	2400	CULG				2019	2054	2				IS,G,DC
			CULG				2019	2205	1				IIIS
			CULG				2054	2205	2				IS,DC
			CULG				2057.5		2				IIIB
			CULG				2057		2				IIIB

SOLAR RADIO EMISSION
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DAY	TIMES OF OBSERVATION START UT	TIMES OF OBSERVATION END UT	STATION	EVENTS: DECIMETRIC BAND START UT	DECIMETRIC BAND END UT	DECIMETRIC BAND INT	METRIC BAND START UT	METRIC BAND END UT	METRIC BAND INT	DEKAMETRIC BAND START UT	DEKAMETRIC BAND END UT	DEKAMETRIC BAND INT	SPECTRAL TYPE
09	2145	2400	MANI										
			CULG				2205	2400					IIIN,W
			CULG				2205	2240	1				IS,DC
			CULG				2240	2400					IS,W
10	0000	0719	CULG				0000	0111					IS,W
	0000	0920	MANI										
			CULG				0010	0126					IIIN,W
			CULG				0143	0143.5	2	0143.5	0144	1	IIIB
			CULG				0259	0259.5		0258.5	0300		IIIG,W
			CULG				0326	0326.5	3	0326	0326.5	2	IIIB
			CULG				0331	0331.5		0331	0331.5		IIIB,W
			CULG				0420	0420.5	2	0420	0420.5	1	IIIB
			CULG				0542						IIIB,W
	0834	1610	WEIS				0610.9	0611.1	1				IIIB
	0608	0812	WEIS				0628	1609	2				IN
			CULG				0642.5	0643.5	1				IIIG
			WEIS				0642.8	0644.9	2				IIIG
			WEIS				0711.8	0712.1	2				IIIG
			CULG				0712		1				IIIB
			WEIS				0736.5	0844.4	2				IIIG
			WEIS				0743.7	0743.8	1				IIIB
			WEIS				0919.5	0924.6	2				IIIGG
	0600	1600	DWIN	0923.2	0923.3	1							IIIG
			WEIS				1011.9	1012.0	1				IIIB
			WEIS				1019.0	1019.2	2				IIIG
			WEIS				1105.4	1106.5	2				IIIG
			DWIN	1105.6	1105.7	1							IIIG
			WEIS				1111.4	1112.3	2				IIIG
			WEIS				1143	1547	2				IIIN
			WEIS				1207.8	1208.0	1				IIIB
			WEIS				1210.8	1210.9	1				IIIB
	2019	2400	CULG				2019	2128					IS,W
			CULG				2026	2217					IIIN,W
			CULG				2128	2256	1				IS,DC
	2207	2400	MANI										
			CULG				2217	2245	1				IIIS
			CULG				2256	2336					IS,W
			CULG				2329	2400	1				IIIS
11	0000	0718	CULG				0000	0015					IIIS,W
			CULG				0000	0025	1				IS
	0000	0920	MANI										
			CULG				0015	0718					IIIN,W
			CULG				0025	0312					IS,W
			CULG				0054	0055.5	1				IIIG
			CULG				0107	0107.5	1				IIIB
			CULG				0312	0430					IN,W
			CULG				0318	0318.5	1				IIIG
			CULG				0501	0501.5	1				IIIG
	0610	1607	WEIS				0622	1516	2				IIIN
			WEIS				0646.3	0646.6	2				IIIG
			WEIS				0648	1214	1				IN
	1330	1600	DWIN										
			WEIS				1444.1	1444.4	2				IIIG
			WEIS				1514.3	1514.7	1				IIIG,U
	2019	2400	CULG				2019	2337					IIIN,W
			CULG				2023	2244	1				N,RS,DP
			CULG				2115.5		1				IIIB
	2147	2400	MANI										
			CULG				2208	2400	1				IS,DC
			CULG				2237.5	2239.5	1				IIIG
			CULG				2310	2310.5	1				IIIG
			CULG				2314.5	2316	2	2315	2316	1	IIIG,U
			CULG				2337	2400					IIIS,W
12			CULG				0000	0022	1				IS,DC
	0000	0719	CULG				0000	0022					IIIS,W
	0000	0322	MANI										
			CULG				0022	0114					IS,W

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DAY	TIMES OF OBSERVATION		STATION	EVENTS									SPECTRAL TYPE
				DECIMETRIC BAND			METRIC BAND			DEKAMETRIC BAND			
	START UT	END UT		START UT	END UT	INT	START UT	END UT	INT	START UT	END UT	INT	
12			CULG				0114	0200	1				IS,DC
			CULG				0133.5	0134	1				IIIG
			CULG				0137	0158	1				IIIS
			CULG				0158	0225					IIIS,W
			CULG				0200	0245	1				IS,C,DC
			CULG				0245	0719	1				IS,DC
			CULG				0249	0300	1				IIIS
			CULG				0300	0445					IIIN,W
	0415	0929	MANI										
			CULG				0445	0513					IIIS,W
			CULG				0513	0606	1				IIIS
			CULG				0522.5	0545	2			II	
			CULG				0554	0555	2				IIIG
			CULG				0606	0646					IIIN,W
	0610	0829	WEIS				0612	1217	3				IN,DC
	0905	1606	WEIS				0616	1456	2				IIIN
			CULG				0646	0719					IIIS,W
			CULG				0715.5		1				IIIB
			WEIS				0721.8	0729.9	3				IIIGG
			WEIS				0741.8	0744.9	3				IIIGG
			WEIS				0747.8	0749.0	3				IIIG
			WEIS				0811.4	0813.9	3				IIIGG
			WEIS				0820.9	0821.9	3				IIIGG
			WEIS				1029.6	1030.0	3				IIIG
			WEIS				1031.2	1032.0	2				IIIG
			WEIS				1034.2	1034.6	2				IIIGG
	0600	1600	DWIN	1034.5	1039.5	1						IV	
			DWIN	1041.2	1042.0	2							IIIG
			WEIS				1041.3	1043.3	3				IIIGG
			WEIS				1056.1	1100.7	2				IIIGG
			WEIS				1128.7	1130.8	3				IIIGG
			DWIN	1210.0	1212.3	2							IIIG
			WEIS				1232.4	1235.6	3				IIIGG
			WEIS				1505.4	1509.7	2				IIIGG
			WEIS				1511.1	1511.9	3				IIIG
	2019	2400	CULG				2026	2400					IIIN,W
			CULG				2038		1				RS,DP
	2150	2400	MANI										
			CULG				2301		1				IIIB
			CULG				2342.5		1				RS,DP
			CULG				2343.5		1				RS,DP
13	0000	0718	CULG				0000	0120					IN,W
	0000	0912	MANI										
			CULG				0007.5	0008.5	1				DC
			CULG				0021	0718					IIIN,W
			CULG				0120	0216					IS,DC,W
			CULG				0137	0718	1				N,RS,DP
			CULG				0202		1	0202		1	IIIB
			CULG				0216	0308	1				IS,DC
			CULG				0308	0718					IN,W
			CULG				0315.5		1				IIIB
			CULG				0333.5		2				IIIB
			CULG				0412		1				IIIB
			CULG				0554.5		1				IIIB
	0600	1600	DWIN										
	0612	1604	WEIS				0639	1604	3				IS
			WEIS				0702	1559	2				IIIN
			WEIS				1100	1600	1				CONT
	2018	2400	CULG				2018	2041	1				IIIS
			CULG				2018	2400	1				IS,C,DC
			CULG				2041	2400					IIIS,W
	2134	2400	MANI										
14	0000	0907	MANI										
			CULG				0000	0240	1				IS,C,DC
	0000	0718	CULG				0000	0225					IIIS,W
			CULG				0012	0013	2	0012	0013	1	IIIG
			CULG				0035	0035.5	1				IIIG
			CULG							0135	0220	1	SWF

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DAY	TIMES OF OBSERVATION		STATION	EVENTS									SPECTRAL TYPE
				DECIMETRIC BAND			METRIC BAND			DEKAMETRIC BAND			
	START UT	END UT		START UT	END UT	INT	START UT	END UT	INT	START UT	END UT	INT	
14			CULG				0143	0144	1				IIIG
			CULG				0210	0210.5	2				IIIG
			CULG				0225	0718					IIIN,W
			CULG				0240	0320	1				IS,DC
			CULG				0320	0718					IS,W
			CULG				0512	0512.5	1				IIIG
			CULG				0517.5	0530	1				N,DC
	0615	0933	WEIS				0615	0933	1				I IIN
	1059	1602	WEIS				0621	1249	1				IN
			CULG				0627.5	0628	1				UNCLF
	0600	1330	DWIN	0820.0	0822.0	2							IIIG
	2144	2400	MANI										
	2018	2400	CULG				2323	2324	3	2323	2323.5	3	IIIG
15	0000	0905	MANI										
	0000	0718	CULG				0208	0209					IIIG,W
			CULG				0254	0255					IIIG,W
			CULG				0523.5	0524.5	1				IIIG
			CULG				0553	0553.5	2				IIIG
	0616	1600	WEIS				0833.9	0834.1	1				IIIG
			WEIS				1135.2	1136.3	1				IIIG
			WEIS				1238.3	1239.2	2				IIIG
	0800	1600	DWIN	1327.6	1328.0	1							IIIG
			WEIS				1450.6	1453.9	3				IIIGG
			WEIS				1508.8	1508.9	1				IIIB
	2018	2400	CULG				2050						IIIB,W
	2140	2400	MANI										
			CULG				2227		1				IIIB
			CULG				2227	2227.5					IIIG,W
			CULG				2353.5		2	2353.5		1	IIIB
			CULG				2357		1				IIIB
			CULG				2359	2400					IIIG,W
16	0000	0905	MANI										
	0000	0718	CULG				0015						IIIB,W
			CULG				0154	0155.5	1	0154	0155	1	IIIG
			CULG				0235		1	0235		1	IIIB
			CULG				0252	0252.5					IIIG,W
			CULG				0304	0305.5	2	0304.5	0305	2	IIIG
			CULG				0408.5	0409					IIIG,W
			CULG				0523	0526.5	1				IIIG
			CULG				0529.5	0531	1				IIIG
	0605	0924	DWIN										
			CULG				0630.5	0632.5	2				IIIG
	0709	1249	WEIS				0743.9	0744.9	2				IIIG
	1255	1600	WEIS				0850.7	0851.3	2				IIIG
			WEIS				0923.0	0931.2	2				IIIGG
			WEIS				0936.7	0937.3	1				IIIG
			WEIS				1129.3	1133.3	2				IIIG
			WEIS				1207.5	1210.6	2				IIIGG
			WEIS				1337.9	1339.8	2				IIIG
			WEIS				1348.4	1348.6	1				IIIG
	1507	1600	DWIN										
	2018	2400	CULG				2109	2109.5	1				IIIG
			CULG				2137						IIIB,W
	2140	2400	MANI										
			CULG				2228	2228.5					IIIG,W
			CULG				2231		1				IIIB
			CULG				2242.5		1				IIIB
			CULG				2252	2252.5		2252	2252.5		IIIG,W
			CULG				2335.5	2336	2	2335.5		1	IIIG
			CULG				2338	2338.5	1				IIIG
			CULG				2340.5						IIIB,W
			CULG				2352.5	2353.5					IIIG,W
17	0000	0910	MANI										
	0000	0718	CULG				0100.5		2				IIIB
			CULG				0119.5						IIIB,W
			CULG				0328.5	0330					IIIG,W
			CULG				0516.5		1				IIIB

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DAY	TIMES OF OBSERVATION		STATION	EVENTS									SPECTRAL TYPE
				DECIMETRIC BAND			METRIC BAND			DEKAMETRIC BAND			
	START UT	END UT		START UT	END UT	INT	START UT	END UT	INT	START UT	END UT	INT	
17			CULG				0544.5						IIIB,W
	0617	1559	WEIS				0642.4	0642.6	2				IIIG
			CULG				0642.5		2				IIIB
			CULG				0649	0705					IIIN,W
			WEIS				0651.0	1540.0	1				IIIN
			CULG				0652	0652.5	1				IIIB
			CULG				0655.5	0657	2				IIIG,V
			WEIS				0655.9	0656.7	2				IIIG
	0605	0814	OWIN	0655	0702	1							IV
			WEIS				0700.2	0701.6	2				IIIG
			CULG				0701	0704	2				IIIG
	1320	1555	BLEN	1356.6	1356.6	2	1356.6	1356.6	2				III,B
			BLEN				1410.3	1410.8	3				III,G
			WEIS				1410.4	1410.6	2				IIIG,U
	2017	2400	CULG				2029	2400					IIIN,W
			CULG				2047.5		1				IIIB
	2147	2400	MANI										
			CULG				2306.5	2307	2				IIIG
			CULG				2310.5		1				IIIB
			CULG				2316.5	2317	1				IIIG
18	0000	0904	MANI										
	0000	0708	CULG				0038	0026					IIIS,W
			CULG				0009.5	0010	2	0009.5	0010	1	IIIG
			CULG				0009	0012	1				IIIGG
			CULG				0024	0025	1				IIIG
			CULG				0032	0708					IIIN,W
			CULG				0212	0212.5	2	0212.5	0213	1	IIIB
			CULG				0352	0352.5	1				IIIB
			CULG				0402.5	0408.5	2				IIIH
			CULG				0521	0522					IIIG,W,U
	0650	1230	BLEN	0722.9	0731.3	2	0722.9	0724.4	2				III,G
	0620	1316	WEIS				0735.0	1511.0	2				IIIN
			BLEN	0831.3	0831.8	3							III,G
			BLEN	0838.3	0838.5	1							DCIM
			BLEN	0906.6	0907.2								III,G
			BLEN	0937.7	0937.9	1							DCIM
			BLEN	0948.7	0949.3	1	0948.7	0948.7	1				III,G
	1344	1406	BLEN	1346.8	1355.2	3	1347.7	1348.4	3				III,GG
	1623	1632	BLEN										
	2017	2400	CULG				2018.5	2019					IIIG,W
			CULG				2021.5	2022					IIIG,W
			CULG				2029.5		1				IIIB
			CULG				2032	2032.5	1				IIIG
			CULG				2040.5	2041.5					IIIG,W
	2142	2400	MANI										
			CULG				2157	2158	1				IIIG
			CULG				2334	2334.5					IIIG,W
19	0000	0900	MANI										
	0000	0717	CULG				0020.5		1				IIIB
			CULG				0028.5	0034	2	0031	0031.5	1	IIIGG
			CULG				0101.5	0102					IIIG,W
			CULG				0308						IIIB,W
			CULG				0343.5	0344					IIIG,W
			CULG				0414		1				IIIB
			CULG				0453	0453.5	2				IIIG
			CULG				0503		1				IIIB
			CULG				0519.5		1				IIIB
			CULG				0614						IIIB,W
			CULG				0621		2				IIIB
	0623	1552	WEIS				0630.8	0630.9	2				IIIG
			WEIS				0640.0	1442.0	1				IN
	0652	1525	BLEN	0652	1525	D 2	0652	1525	D 2				I
			WEIS				0912.6	0918.5	2				IIIGG
			BLEN	0913.8	0914.6	3	0913.3	0915.2	3				III,G,DCIM
			WEIS				0921.0	1516.0	2				IIIN
			WEIS				0944.7	0945.0	2				IIIG
			BLEN	0944.7	0944.9	2							DCIM
			BLEN	1315.0	1352.0	2							III,GG

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DAY	TIMES OF OBSERVATION		STATION	EVENTS									SPECTRAL TYPE
				DECIMETRIC BAND			METRIC BAND			DEKAMETRIC BAND			
	START UT	END UT		START UT	END UT	INT	START UT	END UT	INT	START UT	END UT	INT	
19	2017	2400	CULG				2032.5	2033	1				UNCLF
			CULG				2104	2105.5					IIIG,W
			CULG				2108	2110					IIIG,W
			CULG				2109		1				IIIB
			CULG				2120	2400					IIIN,W
			CULG				2152	2153	3	2152.5	2153	1	IIIG
			CULG				2204.5		1				IIIB
			CULG				2306	2400					IS,W
			CULG				2339.5	2340	1	2339.5	2340	1	IIIG
			CULG				2344	2344.5	3	2344	2344.5	2	IIIG
			CULG				2346.5	2348	2	2346.5	2348	1	IIIG
			CULG				2351.5	2353	3	2351.5	2352.5	2	IIIGG
	2144	2400	MANI							2352.0-	2352.2	1	III
20	0000	0960	MANI										
	0000	0717	CULG				0000	0458					IN,W
			CULG				0001	0717					IIIN,W
			CULG				0004.5	0005.5	2	0005	0005.5	1	IIIG
			CULG				0031.5		1				IIIB
			CULG				0048	0048.5	1	0048	0048.5	1	IIIG
			CULG				0213.5	0221	2	0213.5	0221	1	IIIGG
			CULG				0226.5		1				IIIB
			CULG				0256		2	0256		1	IIIB
			CULG				0301		2	0301		1	IIIB
			CULG				0317	0318	1	0317		1	IIIG
			CULG				0319		2	0319		1	IIIB
			CULG				0530.5	0531.5	2				IIIG
	0625	1425	WEIS				0657.2	0657.9	1				IIIG
	0655	1524	BLEN				0657.7	0657.8	2				III,G
			WEIS				0713.3	0714.9	2				IIIG
			BLEN				0713.4	0713.9	2				III,G
			CULG				0713	0715	1				IIIG
			WEIS				1045.9	1046.1	1				IIIG
			BLEN	1112.4	1115.5	1							DCIM
			BLEN	1121	1524	1	1121	1524	1				I
			WEIS				1131.0	1131.3	2				IIIG
			WEIS				1151.0	1152.0	2				IIIG
			WEIS				1235.6	1235.7	1				IIIB
			WEIS				1240.9	1242.2	2				IIIG
			BLEN	1301.7	1302.9	2	1301.7	1302.9	3				III,GG
			BLEN	1356.9	1357.5	2							DCIM
	1439	1550	WEIS										
	2017	2400	CULG				2017	2136					IIIS,W
			CULG				2024	2400	1				N,RS,DP
			CULG				2136	2310					IIIN,W
			CULG				2139.5		1				IIIB
	2144	2400	MANI										
			CULG				2155.5		1				IIIB
			CULG				2228	2229	2	2229		1	IIIG
			CULG				2257	2400					IS,W
			CULG				2310	2400					IIIS,W
			CULG				2322	2323	1				SLOW DRIFT
			CULG				2329	2329.5	1				SLOW DRIFT
21	0000	0717	CULG				0000	0717					IIIN,W
			CULG				0055	0717	1				N,RS,DP
			CULG				0325	0325.5	1				IIIG
	0000	0859	MANI							0347.1-	0347.9	1	III
			CULG				0347		1	0347		1	IIIB
			CULG				0348.5	0351	3	0348.5	0351	2	IIIG,V
			CULG				0354.5	0357	1				IIIG
			CULG				0541		1				IIIB
	0626	1548	WEIS				0631.1	0634.5	3				IIIG
			CULG				0633	0634	2				IIIG
			WEIS				0639.0	0639.1	1				IIIB
			WEIS				0703.8	0704.0	1				IIIB
	0655	1523	BLEN				0717.6	0717.6	2				III,B
			WEIS				1346.9	1347.0	1				IIIB
			BLEN	1348.3	1349.2	1							III,G
			WEIS				1404.2	1404.6	2				IIIG

SOLAR RADIO EMISSION
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DAY	TIMES OF OBSERVATION START UT	TIMES OF OBSERVATION END UT	STATION	EVENTS: DECIMETRIC BAND START UT	DECIMETRIC BAND END UT	DECIMETRIC BAND INT	METRIC BAND START UT	METRIC BAND END UT	METRIC BAND INT	DEKAMETRIC BAND START UT	DEKAMETRIC BAND END UT	DEKAMETRIC BAND INT	SPECTRAL TYPE
21			BLEN				1404.4	1404.6	2				III,G
			BLEN	1422.3	1422.5	1							III,U
			BLEN	1437	1523	1	1437	1523	1				I,DC
			BLEN	1452.7	1453.2	1							DCIM,RS
			WEIS				1533.7	1533.8	1				IIIG
			CULG				2017	2400	1				N,RS,DP
	2017	2400	CULG				2017	2400					IIIS,W
			CULG				2105	2108	1				IIIGG
	2125	2400	MANI										
22	0000	0906	MANI										
	0000	0717	CULG				0000	0200					IIIS,W
			CULG				0000	0717	1				N,RS,DP
			CULG				0106		1				IIIB
			CULG				0110.5	0111	2				IIIG
			CULG				0200	0519					IIIN,W
			CULG				0204	0430					IN,W
			CULG				0208	0209	2				IIIG,V
			CULG				0430	0717					IS,W
			CULG				0519	0717					IIIS,W
			CULG				0520.5	0522.5	2				IIIG
			CULG				0614	0614.5	1				IIIG
	0628	1546	WEIS				0642	1525	2				IN
			WEIS				0702	1521	2				IIIN
			WEIS				0745	1515	1				CONT
	0655	1519	BLEN	0909	0914	2	0909	0914	2				I
			BLEN	1031.8	1041.7	2	1031.5	1041.4	2				III,G,DCIM
			CULG				2016	2400	1				RS,DP,S
			CULG				2016	2400					IIIS,W
	2016	2400	CULG				2016	2200					IS,W
			CULG				2032	2400	1				N,DP
			CULG				2105	2110	1				DC
	2150	2400	MANI										
			CULG							2153	2400		N,RS,DP,W
			CULG				2200	2400	1				IS,DC
			CULG							2204	2400		N,DP,W
23			CULG				0000	0704	1				RS,DP,S
			CULG				0000	0704					IIIS,W
			CULG							0000	0417		N,RS,DP,W
	0000	0704	CULG							0000	0239		N,DP,W
			CULG				0000	0704	1				IS,DC
			CULG				0000	0704	1				N,DP
	0000	0900	MANI										
			CULG				0019.5	0021	2	0020	0021	1	IIIB,V
			CULG				0131.5	0135.5	1				IIIGG
			CULG				0141	0704	1	0141	0226	1	IIIN
			CULG				0413	0414	2				IIIG
	0630	0651	WEIS				0632	1541	2				IS,DC,CONT
	0655	1523	BLEN				0655 E	1523 D	2				I,DC
	0702	1544	WEIS				1019	1528	2				IIIN
			BLEN	1028.2	1028.5	1							III,G
			CULG				2016	2150	2				IS,DC
	2016	2400	CULG				2016	2119	2				RS,DP,S
			CULG				2016	2400					IIIS,W
			CULG				2025.5		1				IIIB
			CULG							2107	2400	1	N,RS,DP
			CULG							2107	2400		IIIS,W
			CULG				2119	2400	1				RS,DP,S
	2148	2400	MANI										
			CULG				2150	2400	1				IS,DC
			CULG				2206.5		1				IIIB
24	0000	0716	CULG				0000	0425	1				IS,DC
			CULG				0000	0716					IIIS,W
			CULG				0000	0706	1				N,RS,DP
	0000	0900	MANI										
			CULG							0011	0458	1	N,RS,DP
			CULG							0011	0458		IIIN,W
			CULG				0235.5		1				IIIB

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DAY	TIMES OF OBSERVATION START UT	TIMES OF OBSERVATION END UT	STATION	EVENTS DECIMETRIC BAND START UT	DECIMETRIC BAND END UT	DECIMETRIC BAND INT	METRIC BAND START UT	METRIC BAND END UT	METRIC BAND INT	DEKAMETRIC BAND START UT	DEKAMETRIC BAND END UT	DEKAMETRIC BAND INT	SPECTRAL TYPE
24			CULG				0246.5	0247	2				IIIB
			CULG				0247.5		2				IIIB
			CULG				0248	0249	1				IIIB,V
			CULG				0328.5	0329.5	1				IIIB,V
			CULG				0425	0716					IS,W
			CULG				0444	0449					N,DP,W
			WEIS				0633.4	0636.3	3				IIIGG
			CULG				0633.5	0635	1				IIIG,V
			CULG				0636		1				IIIB
	0630	1541	WEIS				0636	1540	2				I
	0655	1519	BLEN				0655 E	1519 D	2				I,DC
			BLEN	0659.5	0706.0	1	0659.5	0706.0	1				III,GG
			WEIS				0705.9	0706.0	3				IIIG
			BLEN	1006.3	1007.4	1							DCIM
			BLEN	1140.6	1145.3	2	1140.6	1140.9	2				III,GG,DCI
			WEIS				1140.6	1140.9	2				IIIG
			BLEN	1157.0	1157.8	1	1157.0	1157.8	1				III,G
			BLEN	1345.2	1355.6	2	1345.2	1355.6	2				III,GG
			WEIS				1345.3	1348.3	3				IIIGG
			WEIS				1354.3	1355.3	3				IIIGG
			WEIS				1528.3	1528.4	3				IIIG
	2016	2400	CULG				2016	2114	1				N,RS,DP
			CULG				2016	2350					IIIN,W
			CULG				2016	2115					IS,W
			CULG				2114	2400					N,RS,DP,W
			CULG				2115	2336					IN,W
	2203	2400	MANI										
25	0000	0900	MANI										
	0000	0716	CULG				0000	0716					N,RS,DP,W
			CULG							0052		1	RS,DP
			CULG				0626	0716					IN,W
	0633	0835	WEIS				0639	1444	2				IN,DC
	0657	1516	BLEN	0657 E	1516 D	2	0657 E	1516 D	2				I,DC
			BLEN	1105.2	1105.7	1	1106.8	1107.2	3				III,GG
	0842	1541	WEIS				1106.7	1107.4	3				IIIG
			WEIS				1152.7	1159.6	2				IIIGG
			BLEN	1406.7	1406.9	2	1406.7	1411.8	2				III,GG
			WEIS				1530.3	1530.4	2				U
	2016	2400	CULG				2052.5		1				IIIB
			CULG				2055						IIIG,W
			CULG				2056.5						IIIB,W
			CULG				2056						IIIB,W
	2140	2400	MANI										
			CULG				2356		1				UNCLF
26	0000	0848	MANI										
	0000	0716	CULG				0153.5		1				UNCLF
			CULG				0203	0445					IS,W
			CULG				0223	0711					IIIN,W
			CULG				0635.5	0637	1				IIIG
			CULG				0635.5	0637.5	2				POSS II
	0633	1849	WEIS				0639	1502	2				IN
	0659	1515	BLEN	0659 E	1515 D	2	0659 E	1515 D	2				I,DC
			BLEN	0735.6	0738.0	1							OCIM
			BLEN	0755.8	0758.1	1	0755.8	0758.1	2				III,GG
			WEIS				0756.0	0757.9	2				IIIG
			BLEN	0813.8	0819.7	1							III,G,RS
			BLEN	0849.6	0849.7	1							III,G,RS
	2016	2400	CULG				2016	2035					IIIS,W
			CULG				2031	2052					IN,W
			CULG				2101.5	2102.5	1				IIIG
	2147	2400	MANI										
			CULG				2154		1				UNCLF
27	0000	0850	MANI										
	0000	0716	CULG				0026.5	0027	1				IIIB,U
			CULG				0348	0349	2				IIIG,V
			CULG				0459	0459.5	1				IIIB,U
			CULG				0539.5	0540.5	2				IIIG

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DAY	TIMES OF OBSERVATION		STATION	EVENTS									SPECTRAL TYPE
				DECIMETRIC BAND			METRIC BAND			DEKAMETRIC BAND			
	START UT	END UT		START UT	END UT	INT	START UT	END UT	INT	START UT	END UT	INT	
27			CULG				0552	0624					IIIN,W
	0637	0733	WEIS										
	0700	1507	BLEN	0700 E	1507 D	2	0700 E	1507 D	2				I,DC
			WEIS				0905	1138	1				IN
	0754	1535	WEIS				1019.2	1020.6	2				IIIG
			WEIS				1031.9	1032.2	1				IIIB
			WEIS				1041.8	1042.0	1				IIIB
			WEIS				1327.9	1328.1	2				U
			BLEN				1443.0	1443.4	1				III,G
			BLEN	1458.0	1458.3	1							DCIM
	2016	2400	CULG				2034	2034.5	2				IIIB
			CULG				2037	2400					IIIN,W
	2140	2400	MANI										
			CULG				2259		1				IIIB
28	0000	0716	CULG				0007		1				IIIB
			CULG				0056	0106					IIIN,W
	0000	0900	MANI							0306.0-	0306.2	1	III
			CULG				0306	0306.5	3	0306	0306.5	2	IIIG
			CULG				0324.5	0325	2				IIIG
			CULG				0336	0716					IIIN,W
			CULG				0600		2	0600	0600.5	2	IIIB
			WEIS				0648.2	0648.7	1				IIIG
	0638	1533	WEIS				0722.0	1530.0	1				I
			WEIS				0726.4	0726.8	1				IIIG
			WEIS				0955.4	0949.4	2				IIIG
			WEIS				1004.1	1004.2	1				IIIB
			WEIS				1124.9	1125.0	2				IIIB
			WEIS				1134.3	1134.6	1				IIIB
			WEIS				1137.5	1137.7	1				IIIB
			WEIS				1244.6	1244.7	2				IIIG
			WEIS				1454.3	1454.4	1				IIIB
			WEIS				1521.8	1522.0	1				IIIB
	2016	2400	CULG				2016	2220					IN,W
			CULG				2025	2400					IIIN,W
			CULG				2032.5		2				IIIB
			CULG				2034	2035	1				IIIG
			CULG				2035.5	2036.5	3				IIIGG,V
			CULG				2103		1				IIIB,U
			CULG				2124	2124.5	2				IIIG
	2136	2400	MANI										
			CULG				2137		2				IIIB
			CULG				2205		1				IIIB
			CULG				2207	2209.5	1				IIIG
			CULG				2220	2400					IS,W
			CULG				2251.5	2252	3	2252		1	IIIG
			CULG				2251		1				IIIB
			CULG				2319.5	2322	2	2319.5	2320	1	IIIG,V
29	0000	0716	CULG				0000	0023					IS,W
			CULG				0003	0012					IIIS,W
	0000	0903	MANI							0012.4-	0012.6	1	III
			CULG				0012	0013.5	2	0012.5		1	IIIGG,V
			CULG				0020	0716					IIIN,W
			CULG				0023.5		1				IIIB
			CULG				0033		2				IIIB
			CULG				0051.5	0052.5	1				DC
			CULG				0139	0716					IN,W
			CULG				0156	0156.5	1				IIIG
			CULG				0201.5	0211					UNCLF,W
			CULG				0239.5	0240.5	2	0240	0240.5	1	IIIG,V
			MANI							0240.0-	0241.3	1	IIIG
			CULG				0241	0241.5	2	0241	0241.5		IIIG
			CULG				0336.5	0337.5	2				IIIGG,U
			CULG				0340.5		1				IIIB
			CULG				0554.5		1				IIIB
			CULG				0556	0557	2				IIIG
			CULG				0614.5	0615	1				IIIG
	1026	1530	WEIS				0630	1459	2				IIIN
	0640	1018	WEIS				0649	1516	3				IN,CONT,P

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DAY	TIMES OF OBSERVATION		STATION	EVENTS									SPECTRAL TYPE
				DECIMETRIC BAND			METRIC BAND			DEKAMETRIC BAND			
	START UT	END UT		START UT	END UT	INT	START UT	END UT	INT	START UT	END UT	INT	
29			CULG				0653.5		1				IIIB
	1000	1510	BLEN	1000 E	1510 D	1	1000 E	1510 D	1				I,S
			BLEN	.			1017.3	1017.7	2				III,G
			BLEN	1022.3	1022.5	1	1022.3	1022.5	1				III
			BLEN	1156.0	1156.3	1	1156.0	1156.3	1				III,G
			BLEN	1205.3	1209.3	2	1205.3	1210.8	2				DCIM,III,G
	2016	2400	CULG				2016	2400					IIIS,W
			CULG				2016	2400					IS,C,W
			CULG				2017	2400	1				IIIN
			CULG				2018	2018.5	3				IIIG,V,U
			CULG				2019.5	2020	3				IIIB
			CULG				2022	2400	1				N,RS,DP
			CULG				2135.5	2136.5	1				DC
	2151	2400	MANI										
			CULG				2314	2328	1				N,DC
			CULG							2330	2400	1	SWF
30			CULG				0000	0716					IS,C,W
	0000	0716	CULG							0000	0400	1	SWF
			CULG				0000	0716	1				N,RS,DP
			CULG				0039	0620	1				N,DP
			CULG				0054	0716	1				IIIN
	0000	0900	MANI							0116.3-	0116.6	2	III
			CULG				0116	0117	3	0116	0117	2	IIIG
			CULG				0238		2				IIIB
			CULG				0424.5	0429.5	1				DC
			CULG				0529	0529.5	1				UNCLF
	0642	1528	WEIS				0631	1526	2				IIIN
			WEIS				0646	1514	1				IN
	0700	1510	BLEN	0705 E	1510 D	2	0705 E	1510 D	2				I,DC,S
			BLEN	0833.3	0834.8	2	0833.1	0833.8	2				III,G
			WEIS				0833.3	0835.3	3				IIIG
			WEIS				1035.7	1036.3	3				IIIG
			WEIS				1048.9	1052.6	3				IIIG
			WEIS				1331.5	1333.3	3				IIIG
			WEIS				1359.5	1400.0	3				IIIG
			BLEN				1448.7	1450.0	2				III,G
			BLEN	1458.6	1500.1	1	1359.4	1359.9	2				III,G
	2016	2400	CULG				2016	2133					IS,W
			CULG				2016	2400	1				N,RS,DP
			CULG				2016	2400	1				IIIS
			CULG				2133	2150	1				IS,DC
			CULG							2141		1	IIIB
	2145	2400	MANI										
			CULG				2150	2400					IS,W
			CULG				2235	2235.5	2	2235.5	2236	1	IIIG
31			CULG				0000	0716	1				IIIS
	0000	0716	CULG				0000	0526					IS,W
	0000	0900	MANI										
			CULG				0016	0016.5	1	0016.5	0017	1	IIIG
			CULG				0026	0035	1				DC
			CULG				0028	0716	1				N,RS,DP
			CULG				0146.5		1	0146.5		1	IIIB
			CULG				0207	0207.5	2				IIIG
			CULG				0227	0716	1				N,DP
			CULG				0239	0239.5	2				IIIB
			CULG				0306	0307.5	2	0306.5	0307.5	1	IIIG
			CULG				0408.5		2				IIIB
			CULG				0420	0422.5	2	0420	0422.5	2	IIIGG
			CULG				0427	0429	2	0427.5	0429	2	IIIGG,V,U
			CULG				0526	0716	1				IS,DC
	0643	1215	WEIS				0647	1517	3				IIIN
	0710	1510	BLEN	0710 E	1510 D	1	0710 E	1510 D	1				I,S
			BLEN	0744.6	0744.6	1	0744.6	0744.6	2				III,RS
			BLEN	0933.2	0933.4	2	0933.2	0933.5	2				III,G,RS
	1221	1527	WEIS										
			BLEN	1311.0	1311.1	2							III
			BLEN	1439.2	1439.5	2	1439.2	1439.6	2				III,G
			CULG				2016	2400	1				IIIS

SOLAR RADIO EMISSION
SPECTRAL OBSERVATIONS

OCTOBER 1979

DAY	TIMES OF OBSERVATION		STATION	EVENTS									SPECTRAL TYPE
				DECIMETRIC BAND			METRIC BAND			DEKAMETRIC BAND			
	START UT	END UT		START UT	END UT	INT	START UT	END UT	INT	START UT	END UT	INT	
31	2016	2400	CULG				2016	2058	2				IS,DC
			CULG				2029.5	2030	3				IIIG,U
			CULG				2058	2243	1				IS,DC
	2150	2400	MANI										
			CULG				2243	2400					IS,W
			CULG				2338.5	2339	2	2339	2339.5	1	IIIG

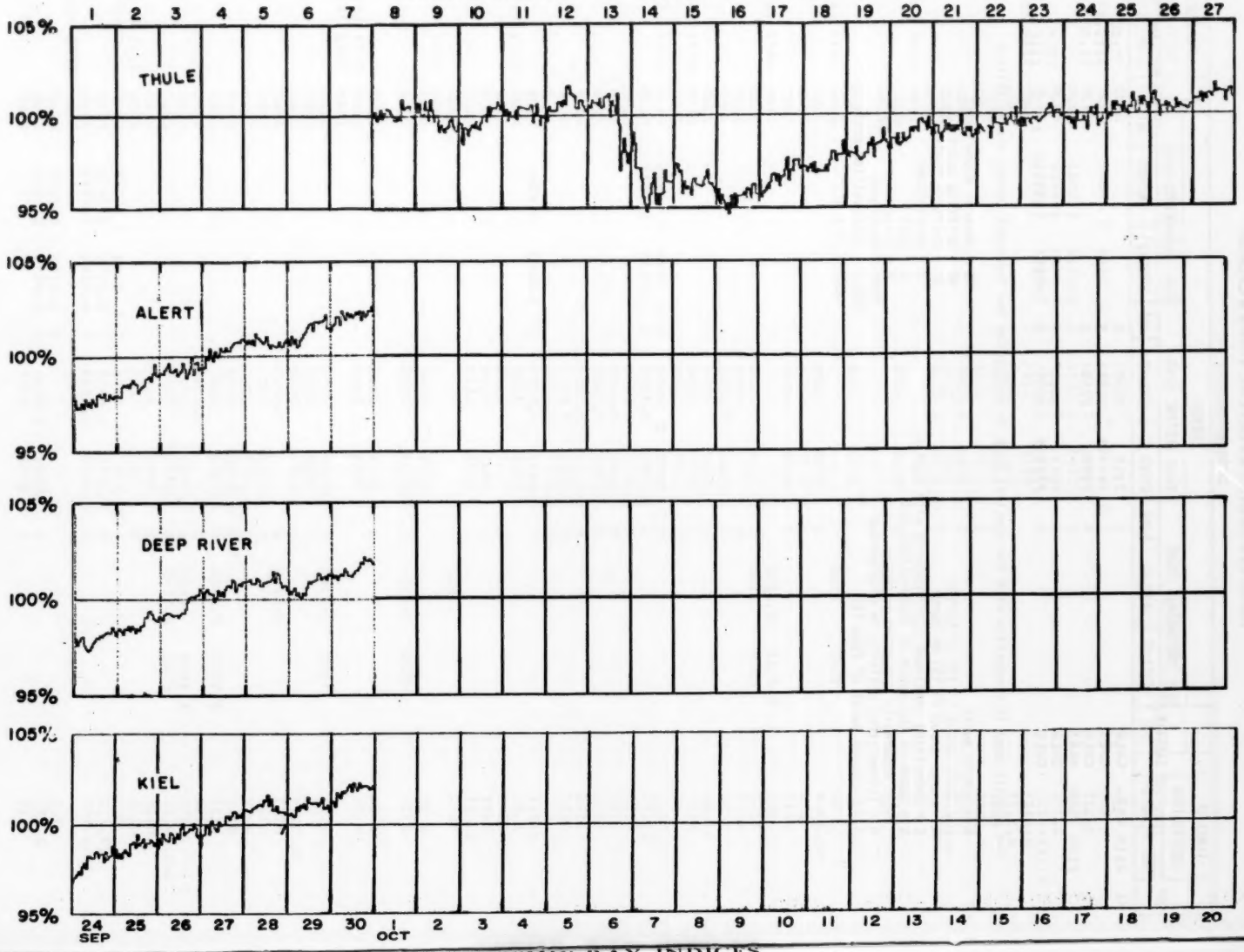
The symbols used in connection with the spectral type in describing the important bursts are as follows:

B = Single burst
G = Small group (< 10) of bursts
GG = Large group (> 10) of burst
C = Underlying continuum (particularly with type I)
S = Storm in the sense of intermittent but apparently connected activity
N = Intermittent activity in this period
U = U-shaped burst of Type III

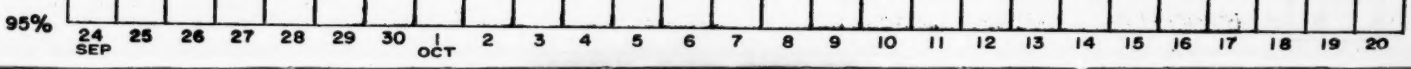
RS = Reverse slope burst
DP = Drifting pairs
DC = Drifting Chains
H = Herringbone
W = Weak
P = Pulsations
CONT = Continuum
UNCLF = Unclassified activity
DCIM = Fast drift

COSMIC RAY INDICES
(Neutron Monitors)

Bartels Rotation 1998 (September-October 1979)

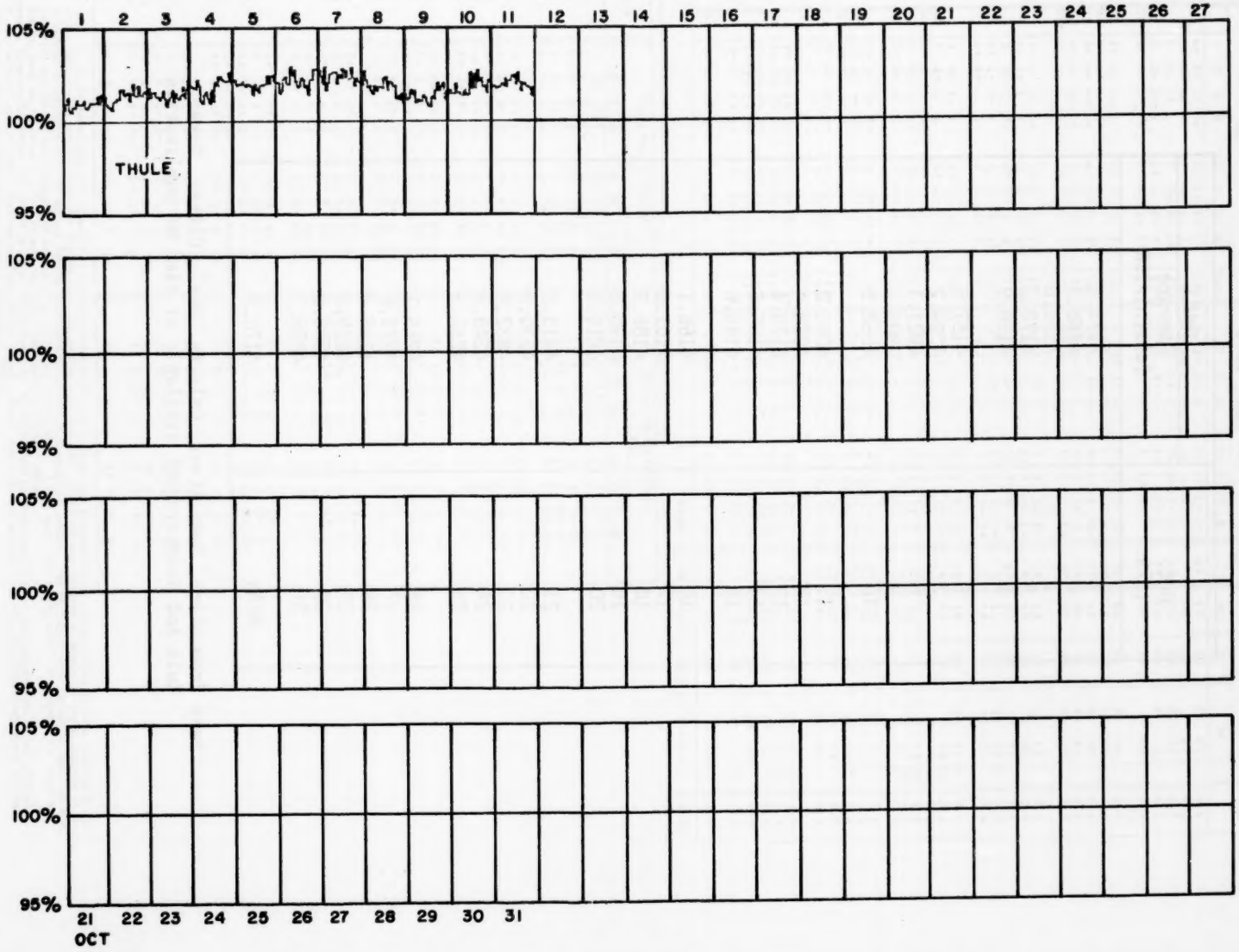


COSMIC RAY INDICES
(Neutron Monitors)



COSMIC RAY INDICES
(Neutron Monitors)

Bartels Rotation 1999 (October 1979)



COSMIC RAY INDICES
(Neutron Monitors)
OCTOBER 1979

Oct. 1979	THULE Average (cts/h)/100
1	4178.0
2	4166.5
3	4161.8
4	4178.7
5	4196.9
6	4167.5
7	4019.2
8	4021.1
9	3985.9
10	4032.5
11	4061.2
12	4092.4
13	4129.4
14	4135.6
15	4148.6
16	4166.1
17	4161.6
18	4186.9
19	4190.0
20	4215.5
21	4213.2
22	4230.2
23	4232.9
24	4249.8
25	4257.3
26	4265.1
27	4272.6
28	4248.4
29	4229.8
30	4248.8
31	4255.3
MEAN	4170.9

Data from Alert, Deep River, Calgary, Kiel, Climax, Tokyo, Kula and Huancayo not available at time of publication.

GEOMAGNETIC ACTIVITY INDICES

OCTOBER 1979

Day		Three-Hourly Indices Kp									Three-Hourly Indices Km								Ap	aa *					Cp
		1	2	3	4	5	6	7	8	Sum	1	2	3	4	5	6	7	8		N	S	M			
1		4-	3-	1+	2+	3	3-	1-	1	17+	3	2-	1+	3	3-	3-	1-	2-	10	13	24	23	15		0.6
2		0+	0+	0+	2-	2	2+	3-	3	13-	1-	0+	0+	2-	2-	3-	3	3	7	18	16	7	28		0.3
3		4	4-	2+	1	2	3+	3-	1+	20+	4-	3	2+	1	2-	3+	3-	2	13	26	19	24	22		0.7
4		3	2-	3+	4	0+	1-	0+	0	13+	3	2	3+	4-	1-	1	0+	0	9	14	21	33	2		0.5
5	Q7	0	0+	1-	1-	2+	2	3-	2+	11	0	1-	1	1-	2+	2+	2+	3-	6	16	11	5	23		0.3
6	D2	3+	4-	4-	5	6-	6	3	3-	33	3	3-	3+	4+	5	5	3-	3-	36	46	45	35	56		1.4
7	D3	4-	4+	4	3+	5	4+	5-	5-	34	3	4	4-	3	5-	4	4	4	32	42	52	41	53		1.3
8	D1	6-	4+	4+	5-	4	5-	4-	5-	36	5-	4-	3+	5-	4-	4	3	5-	37	42	42	41	43		1.4
9	D4	4+	4-	4+	5-	3	3	3+	3-	29	4-	3-	4-	4	3-	3	3+	3	23	34	37	48	24		1.1
10	D5*	4	4	3	3	3+	2	4-	2	25	3+	3	3-	3-	3+	2	3	2+	17	27	25	24	29		0.9
11		1-	1	3-	3-	3+	3	2	2-	17	0+	1	3-	3	3	3	2-	2-	10	13	19	14	18		0.5
12		1-	1+	1	2	2	2	3-	4-	15+	1-	1	1+	2+	2+	2	3-	4-	8	17	16	9	25		0.5
13		3	3-	3	3-	2-	2+	3	3	21+	2+	2+	3-	2	1+	3-	3	3	12	22	19	19	23		0.7
14	Q8	2+	1-	3-	2	1	2	1	1-	12+	2+	1-	3-	2	1+	2	1	1-	6	11	13	15	10	C	0.3
15		0+	0+	1	2	3	3	2+	2	14	1-	1-	1+	3-	3	3-	3-	2+	8	12	19	10	22		0.4
16		3	3-	2-	2	2+	1	1+	1	15	3-	2	1+	1+	2	1	2	1+	9	15	10	15	10	C	0.4
17	Q2	1	2-	1	1	1+	1-	1-	2-	9	1+	1+	1	1-	1+	1-	1-	2-	4	10	8	8	10	CC	0.2
18	Q1	1	1	1	0	0+	0	1-	1+	5+	1	1	1	0	0+	0	0+	1+	3	4	4	4	4	CC	0.0
19	Q3	1	0+	1-	1+	2+	2-	1	2-	10	1-	1	1	1	2	2-	1+	2	5	11	10	9	13	CC	0.2
20	Q0	3-	0+	2	2	1	2+	1+	2-	13+	2-	1-	2-	2	1+	2+	2-	2	6	13	9	11	11	CC	0.3
21		2-	3-	1+	2+	2	3-	2+	4-	19-	1+	2	1+	2-	2+	3	2+	4-	10	20	13	13	21		0.6
22		3+	3+	4-	3-	2	3+	2	2-	22	3	3-	3	2+	2	3+	2+	2+	14	27	19	26	21		0.8
23	Q9	1+	2	1+	2	2-	2-	2	2	14	1+	1+	1+	2	2	2+	2+	2+	6	14	12	11	15	C	0.3
24		2	3	3	3+	3	3	2	1	20+	1+	3-	3-	3	3+	3-	2-	1	12	15	22	19	18		0.7
25		2	3	4+	2+	3-	2+	3	3-	22+	2-	2+	3+	2+	3-	2+	3-	3-	14	20	21	20	21		0.8
26		2-	3+	1+	2-	2	2-	2-	2+	16-	1+	2	1	2-	2+	2	2-	2	8	16	12	13	15		0.4
27	Q5	0+	2-	2+	2-	1-	2-	2	2-	12	0+	1+	2	1+	1+	2-	2+	1+	6	10	9	8	12	CC	0.3
28		2-	3-	2-	3-	3-	1+	1	3+	17	1+	2	2	3-	3	1+	2-	3	9	17	12	13	16		0.5
29		4-	3+	1+	2-	1+	2+	3-	2+	19-	3	3-	1-	1+	2-	2+	3-	3-	11	21	14	19	17		0.6
30	Q4	3-	2	1+	1+	1	0+	0+	0+	9+	2	1+	1+	2-	1	0+	0+	0+	5	9	10	14	5	CC	0.2
31	Q6	1-	0	1-	2	1+	2+	2	2+	11+	0+	0+	1	1+	2	2+	2	3-	5	12	16	7	21		0.2
																		MEAN	12	18.9	18.7	19.0			0.56

Day	Three-Hourly Indices Kn								Three-Hourly Indices Ks							
	1	2	3	4	5	6	7	8	1	2	3	4	5	6	7	8
1	3	2-	1+	3	3-	3-	1-	1+	3	2-	1+	3	3-	3-	1-	2
2	3	0	0	1+	2	3	3	3+	1	1	1-	2-	2-	3-	3	3
3	4-	3	2	1	2	3+	3-	2-	3+	3	3-	1	2-	3+	3-	2+
4	3-	2-	3+	4-	1-	1+	0+	0	3	2+	3	3+	1-	1	0+	0+
5	0	0+	1	1-	2+	2+	2	3-	0+	1-	1	1-	2	2+	2+	3-
6	3	3-	4-	4+	5-	5	3-	3	3	2+	3-	4+	5+	5+	3-	3-
7	3	4	4-	3	5-	4	4-	4-	3+	4+	4	3	5	4	4	4+
8	5-	4-	4-	5-	4	4+	3+	4	5	4-	3+	5	3+	4	3-	5-
9	3+	3-	4-	4+	3	3	3	3	4-	3	3+	4-	2+	3	3+	3
10	3+	3+	3-	3-	4-	2	3+	2+	3+	3-	3-	2+	3+	2-	3	2+
11	0+	1-	2+	3-	3	3	2-	1+	0+	1+	3-	3	3	3+	2	2-
12	1-	1	1	2+	2+	2-	3-	4-	1	1	1+	2+	2+	2	3-	4-
13	2+	2+	2+	2	1+	3-	3	3-	2+	2+	3-	2	1+	3-	3-	3+
14	2+	1-	2+	2	1	2+	1	0+	2+	1	3-	2	1+	2	1	1-
15	1-	1-	1	3-	3+	3-	3-	2+	1	1	1+	2+	3-	2+	3-	2+
16	2+	2+	2-	1+	2	1	2	1+	3-	2	1+	1+	2+	1-	2-	2-
17	1	1	1	1-	1+	1-	1-	2-	1+	2-	1+	1-	1+	1-	1-	2-
18	1+	1-	1	0	0	0	0+	1+	1	1+	1+	0+	0+	0	0+	1+
19	1-	1	1	1	2	2	1+	2-	1-	1	1	1+	2	2-	1	2+
20	2	0+	2-	2	1+	2+	2-	2-	2-	1	2-	2	1+	2+	2-	2
21	1+	2	1+	2-	3-	3	2+	4-	2-	2	1	2	2	3	2+	4-
22	3	3-	3	2+	2	3+	2	2+	3-	3-	3-	2+	2+	3+	3-	3-
23	1+	1+	1+	2	2-	2+	2+	2	1+	2-	1+	2	2+	2+	2+	2+
24	1+	3-	3-	3-	3+	3-	2-	1-	1+	3-	2+	3	3	3-	2	1+
25	1+	2	3+	2+	2+	3-	3	3-	2-	2+	3	3-	3-	2+	3-	3-
26	2-	2+	1+	2-	3-	2	2-	2+	1+	2	1-	2-	2	2+	2	2
27	0	1+	2+	1+	1+	2-	2+	1+	1-	1+	2-	1+	1+	2	2+	1+
28	1+	2	2+	3-	3	1+	1	3	2-	2-	1+	3-	3-	2-	2	3-
29	3	3-	1-	1+	2-	2+	3-	3-	3+	3-	1-	1+	2-	2	2+	3-
30	2	1+	1+	1+	1+	1-	0	0	2+	1+	1+	2	1	0+	0+	1-
31	0+	0	1-	1+	2	2	2	2+	0+	1-	1+	1+	2+	3-	2	3-

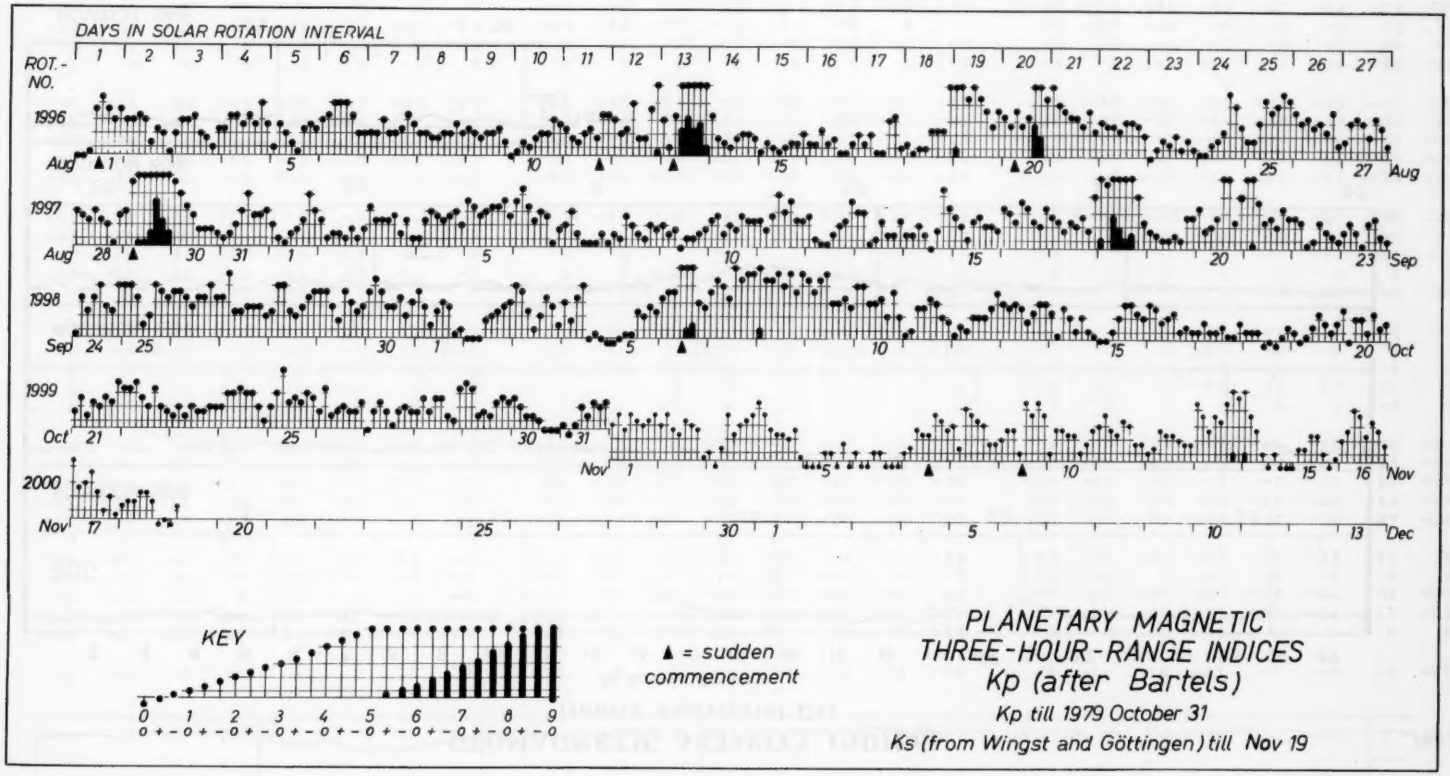
Quiet days (Q) and disturbed days (D), geomagnetic planetary three-hour-range indices (Kp) (integers alone are equivalent to those normally given with a small zero), magnetic character figures (Cp), and average amplitude (Ap) (unit 2 nT) are prepared by Geophysikalisches Institut at the University of Göttingen, F.R. of Germany for the International Service of Geomagnetic Indices. Ten most quiet days [Q1-Q0(10)] and five most disturbed days [D1-D5] are ordered from most quiet or disturbed, respectively. A or K means "not really quiet" (A = "Ap>6", K = "Ap≤ 6 but one Kp≥ 3o or two Kp values ≥ 3-"). An asterisk means "not really disturbed" (Ap<20).

Geomagnetic three-hourly indices Kn, Ks and Km as in *IAGA-Bulletin No. 32* and indices aa ("antipodal") as in *IAGA-Bulletin No. 33* are prepared by M. Menvielle of the Institut de Physique du Globe, Paris, France. Really quiet (C) and quiet but slightly disturbed three-hourly intervals (K) are given for 24-hour and 48-hour intervals centered on 1200 UT.

DAILY AVERAGE INDICES Ap

	1978		1979									
DAY	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT
1	13	11	10	6	12	33	18	5	7	16	10	10
2	10	3	19	10	20	36	14	6	4	11	5	7
3	12	5	19	9	13	54	6	4	14	10	9	13
4	5	12	45	19	27	47	7	6	9	16	10	9
5	6	10	23	9	13	52	7	4	9	8	17	6
6	2	5	18	16	30	12	6	34	22	18	15	36
7	9	2	32	6	7	12	11	26	27	10	5	32
8	14	3	8	9	7	12	8	14	9	7	6	37
9	8	3	15	9	15	9	14	15	6	6	5	23
10	16	1	4	6	54	12	7	14	6	7	9	17
11	10	1	4	12	18	6	19	10	4	10	14	10
12	53	4	10	17	6	15	9	7	11	18	8	8
13	22	7	5	3	7	11	8	8	16	76	8	12
14	11	28	8	2	3	15	11	7	14	7	10	6
15	8	28	15	11	8	18	11	10	15	4	8	8
16	5	14	12	7	11	16	5	16	11	5	14	8
17	6	9	7	5	21	11	3	14	14	8	11	4
18	5	48	11	22	7	6	11	6	15	11	64	3
19	13	24	19	15	11	6	24	6	11	35	5	5
20	22	26	12	6	6	2	13	8	18	42	22	6
21	16	12	11	59	4	21	13	15	9	22	23	10
22	28	19	14	33	45	45	36	24	6	12	6	14
23	12	7	27	31	12	23	11	19	6	5	7	6
24	18	6	23	17	15	14	27	10	5	13	15	12
25	60	21	34	14	21	126	34	9	3	22	19	14
26	33	8	28	22	26	12	25	20	17	15	19	8
27	17	14	23	24	18	27	17	10	23	12	15	6
28	5	14	13	17	39	31	11	4	10	10	15	9
29	4	20	13		68	47	30	7	24	77	15	11
30	5	27	16		16	26	10	10	9	15	18	5
31		18	13		19		6		3	12		5
MEAN	15	13	16	15	19	25	14	12	12	18	14	12

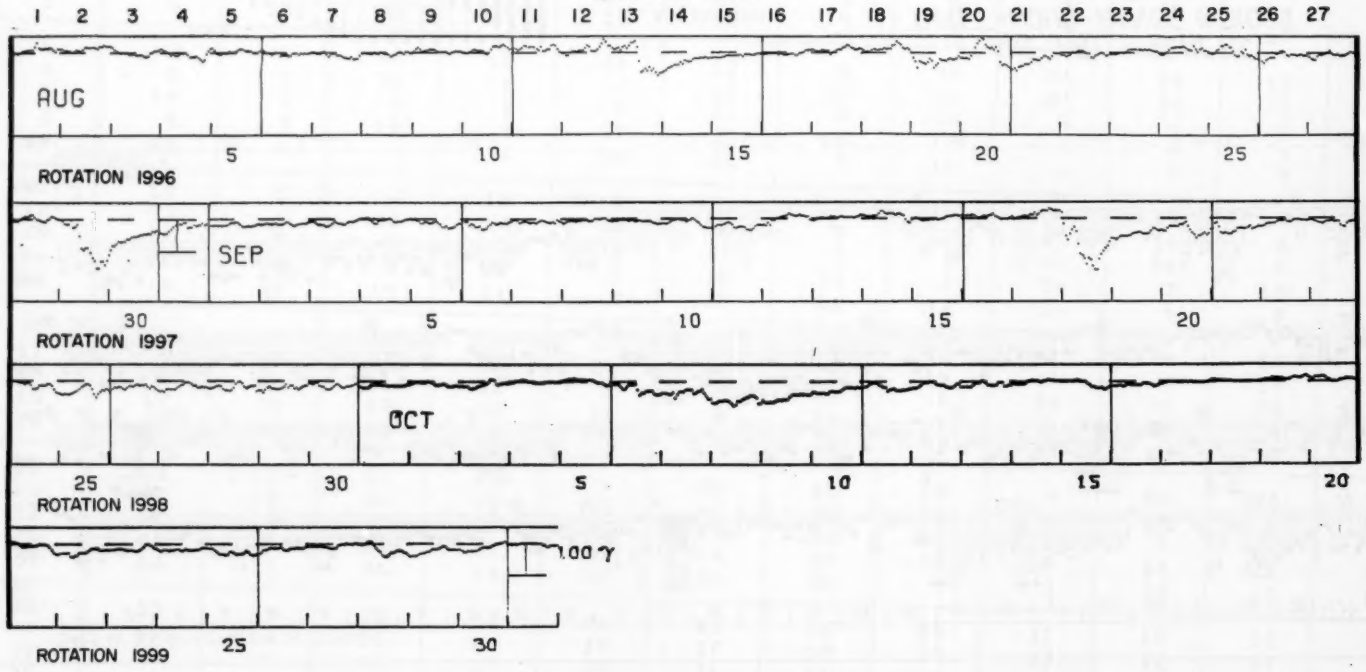
GEOMAGNETIC ACTIVITY INDICES



GEOMAGNETIC ACTIVITY INDICES

Hourly Equatorial Dst

by Bartels Rotation



Note: Both the sensitivity indicator placed on the last day of the month and the zero reference level change from month to month.

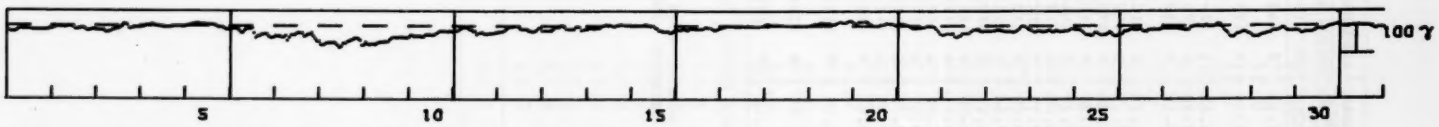
HOURLY EQUATORIAL Dst VALUES (PROVISIONAL)

OCTOBER 1979

NASA/GODDARD SPACE FLIGHT CENTER

(Time-UT) (Units-Gammas)

DAY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
1	-20	-25	-24	-24	-19	-13	-10	-12	-13	-12	-14	-16	-15	-18	-18	-18	-16	-14	-15	-17	-18	-14	-11	-11
2	-8	-6	-3	-3	-4	-5	-5	-3	-1	-2	-8	-11	-16	-17	-11	-6	-9	-15	-21	-20	-17	-13	-16	-19
3	-16	-20	-16	-20	-26	-27	-26	-19	-14	-13	-12	-11	-7	-2	6	6	-1	-13	-14	-8	-5	-6	-6	-8
4	-3	-6	1	2	0	5	5	-2	-5	-4	-7	-9	-8	-10	-9	-5	-2	-2	-1	-5	-6	-7	-6	-4
5	1	2	4	6	7	8	9	6	5	3	2	0	4	4	2	-2	-6	-9	-9	-10	-13	-16	-15	-11
6	-9	-11	-10	-15	-21	-27	-25	-15	-10	-12	-14	-9	-30	-46	-36	-39	-30	-30	-28	-29	-41	-45	-40	-38
7	-36	-37	-40	-43	-40	-34	-55	-40	-31	-33	-34	-26	-24	-29	-29	-41	-36	-29	-31	-24	-39	-49	-56	-57
8	-68	-70	-64	-59	-63	-58	-57	-58	-64	-71	-79	-71	-61	-60	-56	-52	-49	-47	-42	-44	-44	-54	-71	-65
9	-56	-67	-68	-66	-67	-68	-61	-57	-56	-57	-54	-57	-54	-46	-41	-39	-43	-43	-38	-40	-39	-44	-45	-38
10	-32	-34	-40	-40	-40	-35	-42	-42	-31	-30	-32	-36	-35	-30	-26	-21	-18	-19	-18	-22	-21	-17	-19	-19
11	-17	-17	-15	-11	-8	-4	-6	-8	-14	-18	-22	-23	-32	-26	-24	-22	-32	-32	-30	-26	-29	-27	-24	-22
12	-21	-20	-20	-16	-12	-6	-4	-4	-1	-1	-1	-11	-15	-16	-13	-14	-21	-22	-24	-19	-16	-8	-11	-19
13	-18	-19	-18	-19	-18	-12	-6	-5	-5	1	1	-8	-15	-16	-16	-14	-14	-3	-3	-8	-20	-14	-12	-13
14	-7	-13	-11	-13	-11	-8	-8	-1	1	4	2	-1	-3	-6	-3	1	2	5	3	0	0	0	1	1
15	1	0	-2	-3	-3	1	4	5	1	-4	-5	-3	-11	-14	-20	-19	-24	-25	-22	-24	-29	-27	-19	-13
16	-13	-15	-15	-12	-16	-19	-14	-10	-9	-12	-12	-12	-14	-14	-11	-6	-6	-7	-9	-15	-19	-14	-12	-8
17	-8	-4	-2	-1	-2	-1	-2	-4	-3	-4	-3	-1	-3	-2	-1	-3	-2	-3	-5	-3	-3	-2	-2	2
18	5	5	3	2	3	1	-2	-2	-3	-4	-5	-5	-5	-6	-4	-3	-2	-2	-3	-3	-2	-2	-1	0
19	2	4	6	5	6	11	7	7	7	8	6	1	0	0	8	11	13	11	8	10	13	17	16	9
20	4	2	13	10	12	14	14	9	3	-1	-6	-4	-6	-1	3	3	5	8	7	3	6	0	-3	0
21	6	6	4	2	-2	-4	-9	-13	-11	-11	-8	-9	-7	-7	-5	-1	-4	-7	-6	-9	-15	-22	-32	-36
22	-37	-30	-27	-33	-32	-31	-41	-44	-37	-35	-27	-27	-27	-27	-24	-18	-14	-14	-13	-15	-23	-24	-18	-23
23	-19	-18	-18	-17	-16	-14	-17	-20	-22	-24	-24	-20	-22	-27	-25	-20	-16	-11	-3	-1	-7	-11	-16	-19
24	-21	-26	-21	-18	-21	-24	-21	-20	-18	-15	-18	-25	-20	-15	-23	-24	-22	-22	-18	-18	-16	-12	-12	-13
25	-14	-15	-17	-23	-29	-35	-36	-36	-38	-33	-24	-23	-31	-36	-36	-31	-31	-27	-21	-29	-37	-39	-37	-31
26	-31	-27	-19	-18	-17	-13	-12	-13	-14	-14	-12	-12	-22	-24	-19	-14	-13	-14	-12	-14	-16	-13	-11	-9
27	-8	-9	-9	-9	-10	-8	-9	-11	-10	-15	-17	-18	-17	-14	-5	-3	-1	-2	1	-1	-5	-2	1	1
28	-2	-5	-5	0	6	8	3	-9	-15	-24	-30	-38	-43	-41	-35	-27	-27	-25	-21	-20	-23	-30	-31	-36
29	-41	-37	-39	-40	-33	-29	-28	-27	-24	-24	-20	-15	-16	-16	-14	-10	-7	-12	-19	-22	-22	-21	-18	-18
30	-20	-24	-30	-27	-22	-22	-24	-25	-21	-18	-14	-12	-11	-12	-12	-10	-6	-3	-1	0	2	4	6	1
31	-5	-8	-7	-5	-4	-1	1	1	0	2	1	-2	-2	-2	-1	-4	-9	-11	-14	-11	-7	-6	-8	-11



Note: Beginning this month, data from Honolulu are included again in the derivation of provisional Dst values. Thus data from all four Dst observatories, Hermanus, Kakioka, Honolulu, and San Juan are used in calculating the above Dst index. Honolulu data were not used in deriving the Provisional Dst values for the months of July, August, and September. The level change from the end of September to the beginning of October is judged to be mostly artificial. When the three month data gap for Honolulu is filled, this artificial discontinuity will be removed.

PRINCIPAL MAGNETIC STORMS

OCTOBER 1979

OBS. 3 letter IAGA code	GEOMAG-NETIC LATI-TUDE	COMMENCEMENT DAY	hr min (UT)	TYPE	SC - AMPLITUDES D(')	H(γ)	Z(γ)	MAXIMUM 3 HOUR - INDEX K DAY(3 HOUR PERIOD)	K	RANGES D(')	H(γ)	Z(γ)	UT END DAY	HOUR
HYB	37.6N	2	1400	..	..	..	..	02(7) 04(3,4)	4	5	135	39	04	13
NEW	55.1N	5	12--	..	..	..	..	06(3)	6	38	93	97		
COL	64.6N	6	00--	..	..	..	..	09(4)	7	226	1610	760	09	18
SIT	60.0N	6	02--	..	..	..	..	06(5)	7	--	--	650	10	17
NEW	55.1N	6	1121	SC	7	35	6	06(5,6) 07(5) 08(1,2,3,4) 09(3,4)	5	36	150	277	11	01
WIT	54.2N	6	1120	SC*	-10 *	70 *		06(4,5,6)	5	25	105	65	06	20
FRD	49.6N	6	1121	SC*	2	16	- 3	08(1)	6	23	150	72	11	21
SJG	29.9N	6	0720	SC	.5	17	.3	06(5)	5	14	123	54	08	12
HON	21.1N	6	1121	SC	- .5	8	3	06(2,3,4,5)	4	5	40	19	07	03
JAI	17.3N	6	1121	SC	- 1.3	33	- 9		-	7	140	51	09	20
SHL	14.6N	6	1121	SC	- .3	32	6		-	5	161	49	09	20
UJJ	13.5N	6	1121	SC	- .7	39	-10		-	6	154	45	09	20
ABG	09.5N	6	1121	SC	- 1.2	33	-11	06(5) 07(5)	6	7	167	51	09	20
HYB	07.6N	6	1121	SC	- .6	37	- 3	06(5,6)	6	5	203	26	07	23
GUA	04.0N	6	1120	SC	--	30	- 9	08(4)	5	10	180	50	09	15
ANN	01.5N	6	1121	SC	- 1.9	57	23		-	--	--	--	09	20
HUA	00.6S	6	1120	SC	2	63	6	06(6)	7	8	312	37	06	23
TRD	01.1S	6	1121	SC	.2	51	62		-	3	335	--	09	20
PHG	18.6S	6	1120	SC	.8	38	33	08(4)	6	9	160	80	10	15
HER	33.7S	6	1121	SC*	41	6	37	06(5) 07(5)	5	40	123	115	10	15
GNA	43.2S	6	1121	SC	1.4	34	6	06(4) 07(4)	6	19	100	110	09	12
KGL	56.5S	6	1120	SC*	66	56	10	06(5,6)	7	--	--	--	09	12
HUA	00.6S	7	0423	SC	1	15	2	07(5)	6	8	365	52	08	24
HYB	07.6N	8	0200	..	..	..	..	08(3,4)	5	4	145	31	09	22
HYB	07.6N	27	2000	..	..	..	..	28(4,5)	4	3	149	30	29	07

Reports were received from the following observatories:

ALIBAG ANNAMALAINAGAR COLLEGE FREDERICKSBURG GNANGARA GUAM HERMANUS HONOLULU HUANCAYO HYDERABAD
JAIPUR KERGUELEN NEWPORT PORT MORESBY SAN JUAN SHILLONG SITKA TRIVANDRUM UJJAIN WITTEVEEN

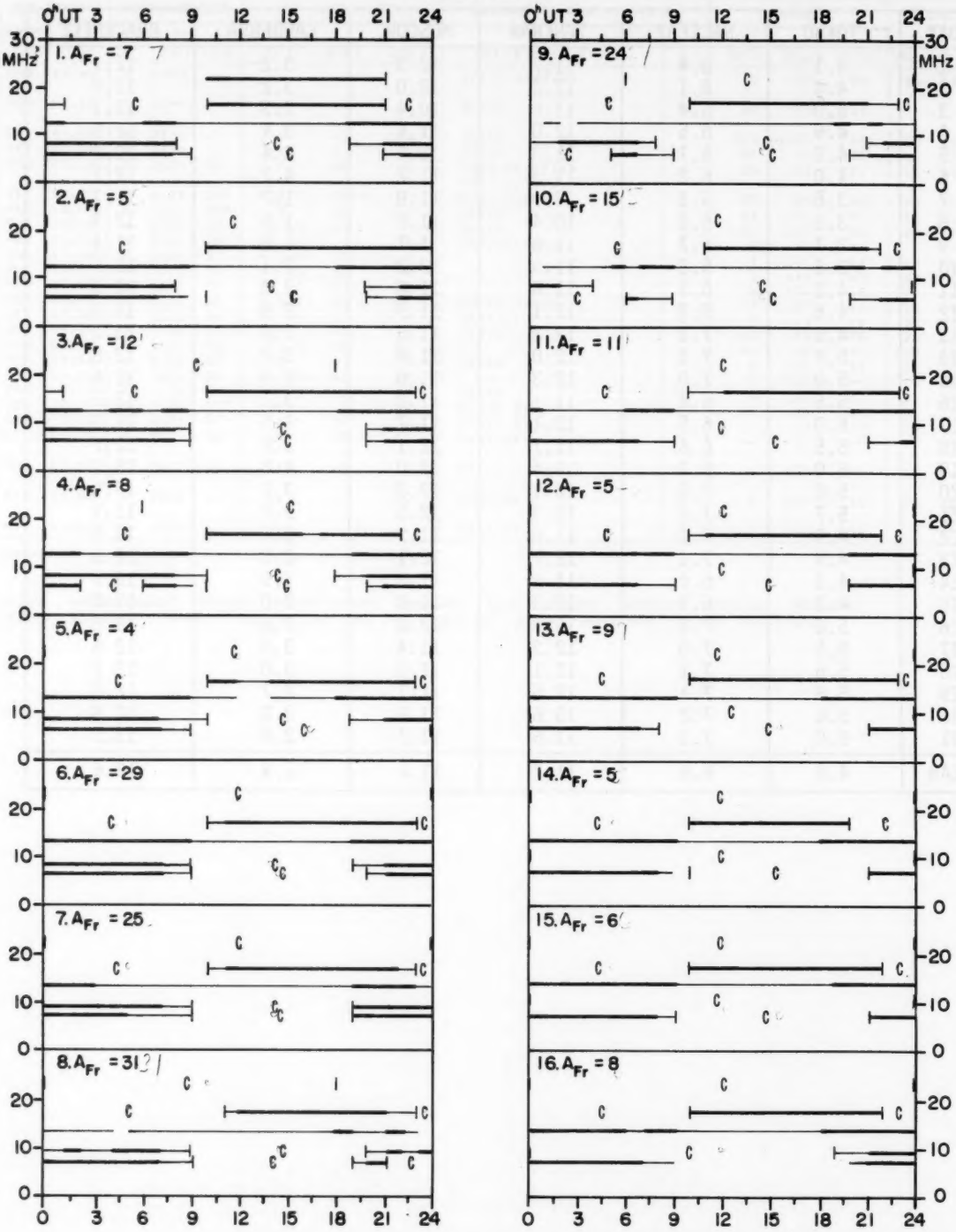
RADIO PROPAGATION QUALITY INDICES

OCTOBER 1979

DAY	TOKYO	HALIFAX	TEHERAN	MOSCOW	CANBERRA	BRACKNELL
1	4.1	6.4	11.7	12.3	3.2	12.7
2	4.4	6.1	12.2	12.0	3.2	12.9
3	4.0	6.4	11.5	10.4	2.3	12.1
4	4.9	6.5	12.0	11.4	3.4	12.8
5	4.9	6.7	11.3	11.6	3.4	12.8
6	4.0	6.2	11.3	11.2	4.2	12.7
7	3.6	5.2	9.9	11.8	1.7	11.7
8	3.3	5.6	10.4	11.6	1.5	12.3
9	2.7	5.7	11.6	11.7	1.8	11.4
10	3.5	5.8	11.3	12.2	2.1	12.7
11	4.2	6.3	11.8	11.6	2.8	12.8
12	4.6	6.7	12.1	11.5	2.6	13.0
13	4.5	7.1	12.2	11.5	2.8	13.0
14	5.7	7.1	12.0	11.4	3.2	12.8
15	5.0	7.0	12.3	11.6	2.9	12.6
16	5.5	6.8	11.1	11.8	3.3	12.7
17	6.0	6.5	12.1	11.7	3.5	12.3
18	5.5	6.8	11.7	12.1	3.4	12.7
19	6.0	6.7	11.4	12.0	4.0	13.0
20	5.8	7.0	12.1	12.3	3.2	13.0
21	5.7	7.0	12.3	12.5	3.2	12.9
22	4.5	7.0	11.6	11.9	3.4	12.6
23	4.9	7.1	12.7	12.1	2.8	12.6
24	4.3	6.6	11.8	11.8	3.5	12.1
25	4.3	6.9	12.3	11.8	2.0	12.0
26	5.0	7.2	10.9	12.0	2.8	12.5
27	5.5	7.0	12.3	11.4	3.3	12.8
28	5.6	7.1	12.1	11.3	3.0	13.2
29	5.8	7.1	12.5	11.1	2.7	12.9
30	5.6	7.2	10.6	11.8	2.8	12.8
31	6.0	7.3	11.6	11.7	2.9	13.0
MEAN	4.8	6.6	11.7	11.7	2.9	12.6

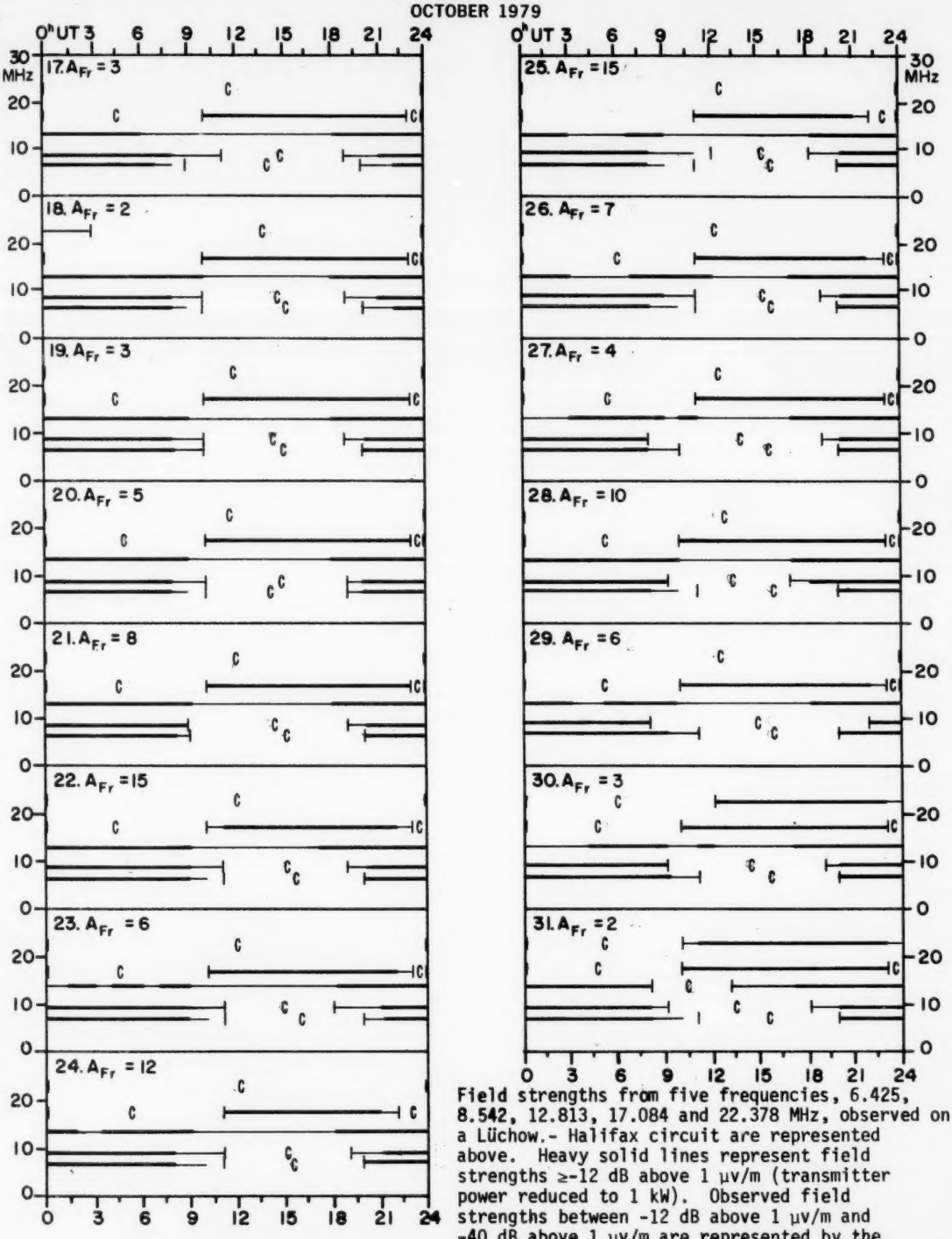
TRANSMISSION FREQUENCY RANGES -- NORTH ATLANTIC PATH

OCTOBER 1979



TRANSMISSION FREQUENCY RANGES -- NORTH ATLANTIC PATH

OCTOBER 1979



Field strengths from five frequencies, 6.425, 8.542, 12.813, 17.084 and 22.378 MHz, observed on a Lüchow.- Halifax circuit are represented above. Heavy solid lines represent field strengths ≥-12 dB above 1 μv/m (transmitter power reduced to 1 kW). Observed field strengths between -12 dB above 1 μv/m and -40 dB above 1 μv/m are represented by the fine line. **Adapted from Observations by Deutsche Bundespost**

USCOMM - ERL

Astronomy
QB1.U57, NOH24, pt2

DECEMBER 1979 Number 424 -- Part II

STACKS JAN 15 1980

Solar-Geophysical Data comprehensive reports

Data for June 1979 & Miscellanea

Explanation of Data Reports Issued as Number 414 (Supplement) February 1979

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Solar - Geophysical Data

NO. 424 DECEMBER 1979

Part II (Comprehensive Reports)

DATA FOR
JUNE 1979

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SOLAR-GEOPHYSICAL DATA

No. 424

Issued in two parts

Helen E. Coffey, Editor

J. Virginia Lincoln, Chief
Solar-Terrestrial Physics Division

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----- = no data available.
blank = data not yet received.

SGD 424 Part II (Comprehensive)

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- IMP 8 Electrons, Protons and Alpha Particles (Data not available at time of publication.)

Solar X-ray Radiation
- SMS-GOES 29-33

SOLAR RADIO EMISSION
OUTSTANDING OCCURRENCES

JUNE 1979

DAY OF MONTH	FREQUENCY	STATION	TYPE		STARTING TIME UT	TIME OF MAXIMUM UT	DURATION MINUTES		FLUX DENSITY 10^{-22} Wm^{-2} Hz^{-1} PEAK	FLUX DENSITY MEAN	INT	POLARIZATION OR REMARKS
1	5730	IRKU	22	GRF	0152	0158.7	24		11	4		L
	5730	IRKU	1	S	0248.5	0249.8	4		4			R
	200	HIRA	43	NS	0330	0720	380	D	10	5		ML
	221	ABST	44	NS	0500	0630.5	360		14			
	260	ONDR	44	NS	0542 E		517	D	17			
	127	TORN	44	NS	0720 E	0811	160	D	62	25		V1
	200	GORK	44	NS	0856 E		184	D		10		
	100	GORK	44	NS	0900 E		120	E		20		
	245	SGMR	44	NS	0913 E	2126.5	896	D	63			
	200	HIRA	44	NS	1930 E	0730	860	D	80	50		ML
	100	HIRA	44	NS	1930 E	0505	860	D	550	350		SL
	5730	IRKU			0558	0604.1			15			R
	5730	IRKU	45	C	0558	0601.2	21		24			R
	4995	ATHN		S	0559	0601.4	13.2		42.3	12.7		
	8800	ATHN		GRF	0559.1	0601.4	14.4		33.1	19.9		
	10400	BERN	3	S	0559.7	0601.1	6		4	12		
	9100	GORK	2	SF	0559.7	0601.2	5.1		19	8		
	2950	GORK	1	S	0600.8U	0601.2	6.2		6	3		
	1470	BERL	4	S/F	0734.5	0740.5	5.5		275			
	930	BORD	41	F	0736	0736.7	1		16	2		
	2950	GORK	1	S	0804.1	0804.2	.3		6	3		
	29	UPIC	4	S/F	0804.2	0804.5	1.1					
	33	UPIC	4	S/F	0804.2	0804.3	1.2					
	930	BORD	8	S	0814	0814.3	1		23	1		
	3100	CRIM	24	R	0911	1112			9			
	10400	BERN	3	S	1006.6	1007.5	3		7	21		
	9100	ARCE	1	S	1007.5	1007.7	1.8					
	930	BORD	8	S	1021.3	1021.4	.4		67	2		
	536	ONDR	3	S	1052.5	1052.5	.2		24			
	7000	SAOP	45	C	1127.6	1128.4	7.2		12			12R
	7000	SAOP	41	F	1127.6							
	9100	GORK	22	GRF	1127.7	1146.5	48		11			
	9100	ARCE	22	GRF	1128	1246.9	190					
	7000	SAOP	45	C	1144.2	1146.6	19.8		12			16R
	536	ONDR	42	SER	1208	1245.4	50		26			
	930	BORD	8	S	1210	1210.1	.2		37	1		
	9400	HUAN		S	1235.4	1246.8	23.6		9.9	2.8		R
	2800	OTTA	22	GRF	1240	1247	90		3.4	1.7		
	7000	SAOP	45	C	1243	1246.8	28.8		25			20R
	4995	ATHN		GRF	1243.2	1247.2	18.5		17.9	10.7		
	9400	HUAN		S	1320	1330.5	19.1		5	2.6		R
	234	POTS	42	SER	1333.2	1333.3	6.8		950	7		
	9400	HUAN		S	1348.3	1408	44.1		6.6	2.8		R
	930	BORD	46	C	1433.6	1433.8	.4		16	2		
	2800	OTTA	240	R	1440	1510	30		5.2	2.6		
	9100	ARCE	22	GRF	1451.1	1510.4	130					AT SUNSET
	7000	SAOP	45	C	1502	1518.2			19			5R
	9400	HUAN		S	1505.1	1510.6	21.9		13.2	4.3		0
	10400	BERN	23	GRF	1508.4	1509.9	20		4	10		
	2800	OTTA	20	GRF	1545	1550	15		3.4	1.5		
	4995	ATHN		GRF	1557.8	1604.2	22.4		25.5	15.3		
	9400	HUAN		S	1600.7	1601.5	1.3		9.9	4.6		R
	7000	SAOP	45	C	1602.6	1604.2	12		19			16R
	4995	SGMR	3	S	1602.8	1604.3	4.4		23.1	6.9		
	9400	HUAN		S	1603.2	1605	2.4		8.3	3.3		R
	9400	HUAN		S	1637.2	1655.2	18.2		13.2	5.6		0
	2800	OTTA	22	GRF	1646	1652	25		4.2			
	1415	SGMR	3	S	1649.4	1652	4.4		15	4.5		
	10400	BERN	23	GRF	1649.5	1651.3	18		4	12		
	9400	HUAN		S	1650.3	1651.6	2.2		9.9	6.1		0
	9400	HUAN		S	1657.1	1657.8	1.5		8.3	5		0
	9400	HUAN		S	1734.7	1750.8	50.9		6.6	3.2		R
	9400	HUAN		S	1738.5	1739	1		5	2.5		0
	2800	OTTA	20	GRF	1815	1835	57		2.4	1.2		
	9400	HUAN		S	1832.8	1835	5.7		11.6	7.9		0
	7000	SAOP		S	1834	1835.1	2		17			0
	4995	SGMR	3	S	1834.6	1835.6	6		14	4.2		
	8800	SGMR	3	S	1834.8	1835.5	3.2		13.7	4.1		
	9400	HUAN		S	1854.6	1855.5	3.2		10.8	5.6		R
	9400	HUAN		S	1902.8	1931.6	47		13.2	9.4		R
	2800	OTTA	240	R	1920	1930	10		2.4	1.2		
	9400	HUAN		S	1928.5	1929.8	2.2		11.6	4.7		R
	4995	BOUL	3	S	1931	1934.5	7.5		13	4		
	9400	HUAN		S	2032.7	2033.3	1.9		9.9	6.6		R
	9400	HUAN		S	2043.9	2049.1	34.9		8.3	2.1		0
2	221	ABST	44	NS	0500	0735.5	300		47			
	260	ONDR	44	NS	0556 E		504	D	94	8		
	202	IZMI	44	NS	0600		360		80			
	200	GORK	44	NS	0618.5E		625	D		25		
	100	GORK	44	NS	0621 E		60			30		
	245	SGMR	44	NS	0913 E	2025	897	D	727			
	410	SGMR	44	NS	0913 E	1429	897	D	37.4			
	200	HIRA	44	NS	1930 E	0500	860	D	600	170		ML

SOLAR RADIO EMISSION
OUTSTANDING OCCURRENCES

JUNE 1979

DAY OF MONTH	FREQUENCY	STATION	TYPE		STARTING TIME UT	TIME OF MAXIMUM UT	DURATION MINUTES		FLUX DENSITY 10^{-22} Wm^{-2} Hz^{-1} PEAK	FLUX DENSITY 10^{-22} Wm^{-2} Hz^{-1} MEAN	INT	POLARIZATION OR REMARKS
2	100	HIRA	44	NS	1930 E	2100	860	D	600	400		SL
	536	ONDR	42	SER	0692	0820.5	100		27			
	6100	KISV	4	S/F	0607	0609	6		3			
	10400	BERN	3	S	0608.2	0608.9	7		5	13		
	10400	BERN	1	S	0654.8	0655.6	6		4	11		
	9100	GORK	22	GRF	0655.2	0655.7	8.4		10	5		
	6100	KISV	4	S/F	0655	0657	5		3			
	3000	BERL	3	S	0730	0731.5	2.5		14			
	2650	DWIN	2	S/F	0730	0731	2		20	10		
	3100	CRIM	1	S	0731	0731.5	1		4	1		
	9100	ARCE	23	GRF	0747.6	1035.2	250					
	9100	GORK			0812.7	0827.6			8			
	9100	GORK			0812.7	0821.1			28			
	9100	GORK	42	SER	0812.7	0813.4	19		4			
	650	GORK	1	S	0818.6	0818.9	.5		2			
	5730	IRKU	1	S	0819	0821.1	5		12			R
	10400	BERN	3	S	0819.3	0820.9	12		9	27		
	3100	CRIM	1	S	0819.5	0821	3		6	2		
	6100	KISV	4	S/F	0819	0821	6		12			
	1470	BERL	42	SER	0820	0821.4	8.5		4.1			
	3000	BERL	42	SER	0820	0828	8.5		11			
	9500	BERL	42	SER	0820	0820.9	8.5		20			
	950	GORK	1	S	0820	0821.2	2.5		1.5	.7		
	9100	ARCE	3	S	0820.9	0821.2	1.8					
	10715	DWIN	1	S	0820	0821	3		20	10		
	2650	DWIN	2	S/F	0822	0823	2		20	10		
	3100	CRIM	1	S	0827	0827.5	1		6	2		
	950	GORK	2	SF	0829.8	0830.1	.7		4			
	650	GORK	3	S	0829.9	0830.1	.6		10.5	5		
	202	IZMI	23	GRF	0837	0838	2		320	110		
	202	IZMI	23	GRF	0841	0841.5	1.8		200	70		
	9100	GORK	20	GRF	0842.7	0854	60		17			
	606	MANI		S	0851.5	0855.1	4	3	13.8	9.2		
	1415	MANI		S	0851.7	0854	4.3	1	5.2	3.5		
	5730	IRKU	1	S	0852	0853.9	7		10			L
	2695	ATHN		GRF	0852.2	0854.2	3.5		13.3	8		
	4995	ATHN		GRF	0852.2	0854.2	6		14.3	8.6		
	3100	CRIM	1	S	0853	0854	2		6	2		
	9500	BERL	1	S	0853	0853.8	2		8.3			
	650	GORK			0853.1	0855.8			8			
	650	GORK	45	C	0853.1	0854	3.1		3.6			
	950	GORK			0853.5	0855.5			5.5			
	950	GORK	45	C	0853.5	0854.7	2.2		4			
	1470	BERL	3	S	0853.5	0854.8	2		11			
	3000	BERL	3	S	0853.5	0854	1.5		8.8			
	1415	ATHN		GRF	0853.6	0854.3	1.7		18.7	11.2		
	2650	DWIN	2	S/F	0853	0854	2		15	5		
	536	ONDR	8	S	0951.4	0951.4	.2		20			
	10400	BERN	1	S	1005.6	1006.2	4		3	12		
	9100	ARCE	40	F	1008.6	1020.5	16.8					
	6100	KISV	4	S/F	1025	1030	15		8			
	6100	KISV	4	S/F	1127	1132	13		38			
	7000	SAOP	3	S	1129.2	1132.2	6.2		60			4OR
	2695	SGMR	3	S	1129.4	1132.9	4.1		29.9	9		5,CONT,SWF
	4995	ATHN		S/F	1130	1132.4	12.8		95.4	28.6		
	4995	SGMR	3	S	1130.2	1132.3	4.7		93.9	28.2		5,CONT,SWF
	8800	ATHN		S	1130.5	1132.4	5.2		38.3	11.5		
	8800	SGMR	3	S	1130.9	1132.4	2.4		31.8	9.5		5,CONT,SWF
	2800	OTTA	21	GRF	1130	1136	65		5.6	2.8		
	3000	BERL	3	S	1131.7	1132.3	2.3		25			
	9500	BERL	1	S	1131.8	1132.8	2.2		18			
	10400	BERN	3	S	1131.8	1132.5	6		5	15		
	2695	ATHN		S	1131.8	1132.3	2.5		16.7	5		
	9100	ARCE	3	S	1131.8	1132.5	1.5					
	2800	OTTA	4	S/F	1131	1132.3	3.5		17.8	6		
	10715	DWIN	1	S	1132	1132	2		10	8		
	2650	DWIN	1	S	1132	1132	3		15	10		
	7000	SAOP	45	C	1150.4	1157.9	16		26			4R
	4995	SGMR	45	C	1151	1153.4	9		13.2	5.3		3G
	4995	SGMR	45	C	1151	1157			17.8			3G
	10400	BERN	23	GRF	1151.8	1157.8	15		4	10		
	1415	SGMR	45	C	1152	1152.9	6.8		6.5	5.7		3G
	1415	SGMR	45	C	1152	1158.5			18.9			3G
	9400	HUAN		S	1152.1	1153.2	2.5		11.6	6.6		L
	1470	BERL	42	SER	1152.5	1158.2	7		20			
	3000	BERL	42	SER	1152.5	1152.8	7		23			
	9500	BERL	42	SER	1152.5	1157.8	7.5		8.4			
	606	SGMR	45	C	1152.6	1153	6.7		50.9	15.3		3G
	606	SGMR	45	C	1152.6	1158.1			9.4			3G
	2800	OTTA	4	S/F	1152.6	1152.6	1.5		30	8		
	2695	SGMR	45	C	1152.7	1158.4			17.3			3G
	2695	SGMR	45	C	1152.7	1153.1	7.3		23.9	7.2		3G
	536	ONDR	8	S	1152.8	1152.8	.3		16			
	930	BORD	46	C	1152	1153	2		39	3		
	2800	OTTA	4	S/F	1157.2	1158	2		14.4	7		

SOLAR RADIO EMISSION
OUTSTANDING OCCURRENCES

JUNE 1979

DAY OF MONTH	FREQUENCY	STATION	TYPE	STARTING TIME UT	TIME OF MAXIMUM UT	DURATION MINUTES	FLUX DENSITY 10^{-22} Wm^{-2} Hz^{-1} PEAK	FLUX DENSITY 10^{-22} Wm^{-2} Hz^{-1} MEAN	INT	POLARIZATION OR REMARKS
2	9400	HUAN	S	1157.3	1158	1.5	9.9	7.9		0
	930	BORD 46	C	1157.4	1158	1.6	15	3		
	9400	HUAN	S	1236	1245.6	23.6	13.2	5.5		0
	2800	OTTA 21	GRF	1250	1415	310	18	9		
	9400	HUAN	S	1313.5	1356	161.6	24.8	9.4		R
	9100	ARCE 21	GRF	1314.5	1354.5	164				
	9400	HUAN	S	1323.4	1324.1	1.3	14.9	7.9		R
	7000	SAOP 4	S/F	1323.5	1324.1	11	16			10R
	9100	ARCE 1	S	1323.9	1324.2	1.5				
	2800	OTTA 1	S	1326	1328	6	5.8	2.9		
	228	HARS 45	C	1336.5	1337.8	2.5	400	120		
	234	POTS 4	S/F	1336.6	1338.2	3.3	190	9		
	9400	HUAN	S	1348.1	1349.2	2.7	197.1	84.4		R
	8800	SGMR 3	S	1348.4	1349.2	3	197	59.1		
	4995	ATHN	S/F	1348.4	1349.2	14.2	92.9	27.9		
	8800	ATHN	S/F	1348.5	1349.2	16.5	289.4	86.8		
	4995	SGMR 3	S	1348.5	1348.9	3.2	98.6	37.4		
	9500	BERL 3	S	1348.5	1349	4	178			
	7000	SAOP 4	S/F	1348.5	1349.4	3	145			15R
	9100	ARCE 3	S	1348.6	1349	5.4				
	15400	SGMR 3	S	1348.6	1349.1	3.2	181	54.3		
	2695	ATHN	S	1348.7	1349.2	11.4	26.6	8		
	2800	OTTA 3	S	1348.7	1349	5	36	9		
	3000	BERL 3	S	1348.7	1349.4	4.3	53			
	10715	DWIN 3	S	1348	1349	6	160	80		
	2650	DWIN 1	S	1348	1349	3	25	15		
	2695	SGMR 3	S	1349	1349.5	2.8	29.1	11.6		
	7000	SAOP 24	R	1410			7			22L
	1415	SGMR 3	S	1411	1413.4	5.3	39.8U	11.9U		
	1470	BERL 4	S/F	1411	1413.5	4.5	28			
	1420	BOUL 45	C	1412 E	1412.5	9.5D	17	6		
	4995	SGMR 3	S	1442.2	1448.9	12.8	178	53		3G,SWF
	10400	BERN 46	C	1442.9	1448.8	60	45	131		
	7000	SAOP 46	C	1443	1448.8	6.8	191			18R
	2695	SGMR 3	S	1443.6	1449.3	11.4	122	37		3G,SWF
	2695	ATHN	S/F	1443.7	1449.1	19.7	103.2	31		
	9400	HUAN	S	1443.7	1444.8	1.6	9.9	7.9		R
	2800	OTTA 28	PRE	1443	1444.5	3	6.8			
	8800	SGMR 3	S	1444.2	1448.9	10.3	186	56		3G,SWF
	4995	ATHN	S/F	1444.4	1449.1	17.9	170.7	51.2		
	2695	BOUL 28	PRE	1445 E	1447.5U	2.5D	6	2		
	9400	HUAN	C	1446.2	1447.7	5.9	142.4	70.5		R
	9400	HUAN		1446.2	1448.8		162.3			R
	8800	ATHN	S/F	1446.5	1448.9	7.7	182	54.6		
	1415	ATHN	S	1446.6	1448.1	9.9	19.1	5.7		
	15400	SGMR 3	S	1446.7	1447.6	8.7	123	37		3G,SWF
	9100	ARCE 45	C	1446.7	1449	8.8				
	9100	ARCE		1446.7	1448	1.8				
	10715	DWIN 4	S/F	1446	1449	7	110	70		
	1420	BOUL 20	GRF	1446 E	1447.5U	7 D	8	3		
	2800	OTTA 4	S/F	1446	1449	8	99	39.2		
	1415	SGMR 1	S	1447.2	1448.7	6.5	8.8	2.6		3G,SWF
	2695	BOUL 45	C	1447.5E	1449.5	8 D	108	36		
	9100	ARCE		1448.5	1449	7				
	4995	BOUL 3	S	1449 E	1449.5	3.5D	83	28		
	9400	HUAN	PBI	1452.1	1452.1	16.3	14.9	3.1		R
	2800	OTTA 29	PBI	1454	1454	20	11.4	5.7		
	2695	BOUL 29	PBI	1455.5E	1455.5U	13 D	13	4		
	4995	BOUL 45	C	1546 E	1548.5	9.5D	137	46		
	8800	SGMR 3	S	1558.2	1600	2.7	20	6		
	1415	SGMR 3	S	1558.6	1558.7	2	11	3.3		
	2695	SGMR 3	S	1600.2	1600.3	.3	18.5	5.6		
	9400	HUAN	S	1601.9	1602.3	1.1	6.6	2.9		R
	10400	BERN 3	S	1606.9	1607.5	5	5	14		
	9400	HUAN	S	1607	1607.5	1.3	9.9	5.2		R
	7000	SAOP	S	1607	1607.5	1.8	10			0
	9100	ARCE 1	S	1607.4	1607.7	2				
	9400	HUAN	S	1616.8	1618.1	2.5	13.2	5.5		0
	9400	HUAN	S	1629.8	1630.2	1.2	5	2.9		R
	7000	SAOP 45	C	1632.8	1635.2	21.2	26			12R
	9400	HUAN	S	1634.6	1635.2	1.5	16.6	10.3		R
	10400	BERN 3	S	1634.7	1635.3	3	5	13		
	9100	ARCE 2	S/F	1634.9	1635.3	11				
	9400	HUAN	PBI	1636.1	1636.1	28.6	8.3	5.5		0
	2800	OTTA 1	S	1714.5	1717	7	8.4	2.8		
	4995	BOUL 3	S	1714	1716.5	5	12	4		
	7000	SAOP	S	1715.5	1716.8	3.8	10			0
	9400	HUAN	S	1814.1	1824.5	17.9	6.6	4.3		0
	9400	HUAN	S	1832	1901.7	38.5	13.2	6.4		R
	2800	OTTA 240	R	1838	1845	7	3	1.5		
	7000	SAOP 20	GRF	1857.7	1901.2	11.4	13			0
	9400	HUAN	S	1925.8	1935	17.2	5	2.2		0
	2800	OTTA 20	GRF	2000	2040	180 D	9.6			
	606	SGMR 20	GRF	2016.5	2044.4	40.5	93.1	2.8		
	9400	HUAN	S	2022	2045.2	51.3	16.6	12.4		0

SOLAR RADIO EMISSION
OUTSTANDING OCCURRENCES

JUNE 1979

DAY OF MONTH	FREQUENCY	STATION	TYPE		STARTING TIME UT	TIME OF MAXIMUM UT	DURATION MINUTES	FLUX DENSITY 10^{-22} Wm^{-2} Hz^{-1} PEAK	FLUX DENSITY 10^{-22} Wm^{-2} Hz^{-1} MEAN	INT	POLARIZATION OR REMARKS
	1415	SGMR	20	GRF	2027.5	2037.4	25.1	19.8	6		
	9400	HUAN		S	2029.6	2030.6	2.1	11.6	8		R
3	17000	NOBE	4	S/F	0116.6	0118.5	3	17			O
	5730	IRKU			0131.5	0136.4		12			L
	5730	IRKU			0131.5	0135.5		12			L
	5730	IRKU	45	C	0131.5	0134.2	9	21	6		L
	17000	NOBE	21	GRF	0132	0134.2	104 D	12			O
	17000	NOBE	4	S/F	0220.9	0221.2	6.6	21			R
	9100	GORK	22	GRF	0342	0350.5	28	18	9		
	650	GORK			0346.6	0350.4		10			
	650	GORK	41	F	0346.6	0347.1	6.9	46			
	950	GORK	1	S	0346.8	0350.9	6.4	2.5	1.7		
	221	ABST	44	NS	0530	0659	360	38			
	202	IZMI	44	NS	0600		360	100			
	260	ONDR	44	NS	0602 E		493 D	118	12		
	536	ONDR	43	NS	0605	0913.7	295	20			
	245	SGMR	44	NS	0913 E	1854.2	897 D	378			
	410	SGMR	44	NS	0913 E	2054.7	897 D	69.3			
	200	HIRA	44	NS	1930 E	0325	860 D	60	10		WL
	9100	GORK	23	GRF	0517	0552.4	99	11	5		
	10400	BERN	3	S	0526	0528	6	9	26		
	9100	GORK	1	S	0528	0528.3	2.2	14	7		
	10400	BERN	3	S	0546	0548.9	8	8	24		
	9100	GORK	1	S	0548.6	0549.3	2.4	19	8		
	17000	NOBE	1	S	0548.6	0549	2	29			R
	650	GORK			0600.2E	0603.3		5.6			
	650	GORK	40	F	0600.2E	0600.7	3.3	6.4			
	650	GORK			0600.2E	0603.3		5.6			
	650	GORK	40	F	0600.2E	0600.7	3.3	6.4			
	10400	BERN	3	S	0600.6	0601.3	4	4	11		
	650	GORK	1	S	0601	0601.5	1.5	8	4		
	9100	GORK	1	S	0601	0601.5	1.5	8	4		
	950	GORK	1	S	0602.4	0603.7	1.3	2			
	950	GORK	1	S	0602.4	0603.7	1.3	2			
	650	GORK	22	GRF	0615	0638.1	21	8			
	650	GORK	22	GRF	0615	0638.1	21	8			
	650	GORK	1	S	0628	0629.3	4.7	10	5		
	9100	GORK	1	S	0628	0629.3	4.7	10	5		
	950	GORK	3	S	0628.2	0628.3	.5	7	3.5		
	950	GORK	3	S	0628.2	0628.3	.5	7	3.5		
	202	IZMI	7	C	0643.5	0644.3	.8	530	360		
	3100	CRIM	28	RPF	0742	0845	63	9			
	9100	GORK	20	GRF	0757	0806.9	12.9	7	3		
	234	POTS	8	S	0800	0800.2	.3	350	70		
	930	BORD	8	S	0825.8	0825.8	.1	20	1		
	6100	KISV	21	GRF	0835	0913.3	55	54			
	5730	IRKU	2	S	0839	0850.7	15	27			R
	3100	CRIM	7	C	0846	0912 D	180	45			
	10400	BERN	23	GRF	0846.1	0913.5	143	30	87		
	10400	BERN	23	GRF	0846.1	0940	143	28	81		
	950	GORK	23	GRF	0846.2	0900.7	43.8	4			
	650	GORK	22	GRF	0846.7	0914.1	45.6	13			
	1470	BERL	21	GRF	0846	0951	174	11			
	3000	BERL	21	GRF	0846	0950	144	35			
	9500	BERL	21	GRF	0846	1011	154	49			
	9100	ARCE	21	GRF	0847.2	0940.2	150				
	9100	GORK	23	GRF	0847.3	0936	66	64			
	2650	DWIN	22	GRF	0847	0936	150	50	20		
	10715	DWIN	22	GRF	0847	0950	150	40	20		
	5730	IRKU	21	GRF	0854	0906.8	16	33			R
	950	GORK	1	S	0857	0858	3	2			
	2695	MANI		S/F	0910.4	0913.8	4.9	2 78.7	26.2		
	5730	IRKU	45	C	0910.5	0911.5	7	50			L
	5730	IRKU			0910.5	0913.3		75			L
	4995	MANI		S/F	0910.9	0913.8	5.1	2 73.3	24.4		
	9500	BERL	4	S/F	0911	0913.5	5	94			
	1470	BERL	4	S/F	0911	0915	5.5	75			
	3000	BERL	4	S/F	0911	0913.8	7	108			
	950	GORK	46	C	0911.1	0911.7	4.7	5			
	950	GORK			0911.1	0913.5U		5 D			
	9100	GORK	4	F	0911.5	0913.7	5.3	72			
	9100	ARCE	45	C	0911.5	0913.7	6				
	1415	MANI		S/F	0911.7	0913.4	9.3	2 167.5	55.8		
	2650	DWIN	45	C	0911	0914	5	90	30		
	10715	DWIN	2	S/F	0911	0913	5	50	20		
	930	BORD	45	C	0911	0913.5	5	313	20		
	3100	CRIM	3	S	0913	0914	4	78			
	8800	MANI		S/F	0913	0913.8	2.1	2 64.1	21.4		
	5730	IRKU	21	GRF	0917.5	0935.4	31	55			R
	3000	BERL	4	S/F	0935	0935.8	5	82			
	9100	GORK	4	F	0937.9	0940.1	5.7	25	13		
	10715	DWIN	2	S/F	0938	0940	4	25	15		
	9500	BERL	3	S	0939	0940	4	57			
	5730	IRKU	29	PBI	0948		60	39			

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DAY OF MONTH	FREQUENCY	STATION	TYPE	STARTING TIME	TIME OF MAXIMUM	DURATION	FLUX DENSITY 10^{-22}Wm^{-2} Hz^{-1}		INT	POLARIZATION OR REMARKS
				UT	UT	MINUTES	PEAK	MEAN		
3	410	SGMR	3 S	1007.8	1010	4.7	36	11		
	606	SGMR	3 S	1008	1010.4	3.8	17.9	3.6		
	408	TRST	42 SER	1008	1008.6	3.4	180 D			
	1470	BERL	4 S/F	1009.5	1011.3	4	50			
	1415	SGMR	3 S	1009.7	1010.9	2.5	41.8	12.5		
	245	SGMR	3 S	1010.5	1012.2	3.1	192	58		
	930	BORD	46 C	1010.8	1011	1.2	25	3		
	234	POTS	42 SER	1011.2	1028.5	18	280	1		
	202	IZMI	8 S	1044	1044.1	.5	350	140		
	2800	OTTA	26 FAL	1050	1220	90	-9.6	-4.4		
	7000	SAOP	20 GRF	1133			13			8R
	9400	HUAN	S	1159	1210.5	18.7	7.8	3.8		R
	9400	HUAN	S	1220.7	1239.5	95.7	4.7	2.7		R
	10400	BERN	3 S	1237.5	1246.6	28	17	49		
	7000	SAOP	45 C	1240	1246.5	36	46			13R
	9400	HUAN	C	1240.4	1246.3	11.2	54.9	12.2		R
	1420	BOUL	28 PRE	1241.5E	1243.5U	4 D	4	1		
	606	SGMR	3 S	1241.9	1242.3	2.4	17.9	5.4		5
	1415	SGMR	3 S	1244.5	1246	2.7	15.8	4.1		5
	1470	BERL	4 S/F	1245	1246.4	2.5	19			
	3000	BERL	3 S	1245.2	1246.2	2.8	8.3			
	9500	BERL	3 S	1245.5	1246.5	3.5	50			
	4995	SGMR	3 S	1245.5	1246.7	2.4	21.6	6.5		5
	1420	BCUL	45 C	1245.5E	1245.5	1.5D	30	10		
	9100	ARCE	3 S	1245.7	1246.7	3.9				
	8800	SGMR	3 S	1245.8	1246.6	3.3	38.3	11.5		5
	2800	OTTA	2 S/F	1245	1246.8	4	4.6	2		
	10715	DWIN	1 S	1245	1246	5	40	20		
	15400	SGMR	3 S	1245.8	1246.8	1.1	49.2	14.8		5
	930	BORD	41 F	1246	1246.8	1	30	1		
	1420	BOUL	29 PBI	1247 E	1257 U	16 D	12	4		
	9100	ARCE	1 S	1250	1250.5	2				
	2800	OTTA	20 GRF	1300	1312	70	4.6	1.5		
	9400	HUAN	S	1344.1	1344.4	1.2	6.3	4.7		R
	10400	BERN	3 S	1425.6	1434.8	40	114 D	331 D		
	4995	BOUL	47 GB	1431.5	1435	7.5D	920	307		
	9400	HUAN	C	1431.7	1434.8	5	1411.2	473.7		R
	8800	SGMR	47 GB	1432	1434.9	7.6	1570	471		5,SWF
	1415	SGMR	47 GB	1432.5	1433.5	8.7	1978	593		5,SWF
	9100	ARCE	3 S	1432.5	1434.6	12				
	2800	OTTA	47 GB	1432.6	1434.5	6.4	632	130		
	606	SGMR	47 GB	1432.7	1433.5	7.4	731	219		5,SWF
	4995	SGMR	47 GB	1432.7	1435.1	6.9	1410	423		5,SWF
	15400	SGMR	47 GB	1432.9	1434.7	5.8	1022	307		5,SWF
	1420	BCUL	49 GB	1432 E	1434	14.5D	1393	464		
	2800	OTTA	21 GRF	1432	1520	495	17.6	7.6		
	930	BORD	45 C	1432	1435	10	994	40		
	2695	SGMR	47 GB	1433	1434.2	8	749	225		5,SWF
	410	SGMR	48 GB	1433.8	1433.9	3.2	510	153		5,SWF
	2650	DWIN	3 S	1433		8	130 D			
	10715	DWIN	3 S	1433		8	260 D			
	245	SGMR	6 S	1434	1434.1	1.5	98.6	29.6		5,SWF
	2695	BOUL	28 PRE	1434 E	1435.5	1.5D	112	37		
	2695	BOUL	47 GB	1435.5E	1436	4 D	602	201		
	9400	HUAN	PBI	1436.7	1436.7	26.7	117.6	27.2		R
	2695	BOUL	29 PBI	1439.5E	1439.5	6 D	41	14		
	2800	OTTA	29 PBI	1439	1439	6	8.4	4.2		
	7003	SAOP	40 F	1500						
	1420	BOUL	45 C	1511.5E	1512.5	2 D	17	6		
	410	SGMR	6 S	1525.2	1525.5	.5	163	49		5
	606	SGMR	3 S	1525.9	1526.1	.5	111	33		5
	9400	HUAN	S	1545	1610.2	35.6	9.4	4.9		R
	10400	BERN	3 S	1606.8	1608	6	7	21		
	9400	HUAN	S	1607.1	1608.1	2.2	15.7	10.5		0
	10715	DWIN	1 S	1607	1608	2	20	10		
	9400	HUAN	S	1741.8	1757.5	37.7	6.3	3.8		0
	9400	HUAN	S	1752	1752.8	1.6	25.1	9.9		R
	7000	SAOP	3 S	1752.4	1752.8	.7	35			38R
	245	SGMR	6 S	1759.2	1800.3	3	113	33.9		
	410	SGMR	48 GB	1759.4	1800.3	1.4	267	801		
	1415	SGMR	1 S	1759.7	1800.2	3.8	9	2.7		
	9400	HUAN	S	1759.8	1800.2	1.3	11	6.6		0
	606	SGMR	3 S	1800	1800.2	3	30	8		
	2800	OTTA	3 S	1800	1800.1	2	10.6	2.6		
	9400	HUAN	S	1914.7	1921.5	13.3	7.8	2.1		0
	1415	SGMR	45 C	2026.4	2037.8		52.6			5
	1415	SGMR	45 C	2026.4	2029.5	14	31.7	15.8		5
	1420	BOUL	28 PRE	2028.5E	2029.5U	1 D	4	1		
	245	SGMR	6 S	2028.8	2030	3.7	109	32.7		5
	410	SGMR	7 S	2028.9	2029.6	6.6	444	133		5
	606	SGMR	45 C	2029.3	2037.8		48.2			5
	606	SGMR	45 C	2029.3	2029.8	9.7	74.9	22.5		5
	1420	BOUL	40 F	2029.5E	2030.5U	9 D	16	5		
	2695	SGMR	3 S	2029.8	2030.7	2.7	28.8	86.4		5
	2800	OTTA	4 S/F	2029	2030.3	6	27.4	4.4		

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DAY OF MONTH	FREQUENCY	STATION	TYPE		STARTING TIME UT	TIME OF MAXIMUM UT	DURATION MINUTES	FLUX DENSITY 10^{-22}Wm^{-2} Hz^{-1} PEAK	FLUX DENSITY 10^{-22}Wm^{-2} Hz^{-1} MEAN	INT	POLARIZATION OR REMARKS
	2695	BOUL	45	C	2030.5E	2031	8 D	130	43		
	9400	HUAN		S	2036.9	2037.8	1.7	11	5.7		D
	1420	BOUL	8	S	2037 E	2037.5	1 D	12	4		
	9400	HUAN		S	2052.6	2053.2	1.6	9.4	3.9		D
	1415	SGMR	3	S	2248.5	2248.6	2.5	25.1	7.5		5
	2800	OTTA	1	S	2248.7	2249	1	5.4	2.7		
4	5730	IRKU	20	GRF	0009.5	0010.1	7	9	3		R
	5730	IRKU	20	GRF	0125.5	0129	26	16	9		L
	1400	SYDN	45	C	0144.8	0146	3.4				
	700	SYDN	8	S	0145	0145.2	.4				
	5730	IRKU	21	GRF	0219	0221.1	35	18			R
	200	GORK	44	NS	0257.5E		602.5D		5		
	221	ABST	44	NS	0500	1110.8	420	9			
	260	ONDR	44	NS	0540 E		515 D	34	2		
	410	SGMR	44	NS	0912 E	1951.5	898 D	515			
	245	SGMR	44	NS	0912 E	1941.8	898 D	261			
	5730	IRKU	21	GRF	0319	0321	9	11			R
	9100	GORK	23	GRF	0343.3	0400.7	265	144			
	4995	MANI		S/F	0345.6	0401	24.4	4 215.2	71.7		
	8800	MANI		S/F	0346	0401	17.5	4 320.4	106.8		
	17000	NOBE	21	GRF	0346.8	0408.6	113	104			D
	2695	MANI		S/F	0346.9	0401	22.4	4 103.8	34.6		
	9100	GORK			0347	0349.7		18			
	9100	GORK	45	C	0347	0347.8	3.5	31			
	1415	MANI		S/F	0349.1	0401	15.9	4 506	76.2		
	5730	IRKU	45	C	0352	0354.5	20	49			R
	5730	IRKU			0352	0402.1		152			R
	5730	IRKU			0352	0357.5		123			R
	950	GORK	40	F	0355	0355.4	9 U	32			
	950	GORK			0355	0402.6		52			
	950	GORK			0355	0401.5		81			
	700	SYDN	4	S	0355	0355.5	.8				
	35000	NAGO	20	GRF	0355	0413	111	68			
	17000	NOBE	7	C	0357.2	0401.3	7	46			D
	1400	SYDN	45	C	0400.3	0400.9	1.5				
	9100	GORK	4	F	0400.7	0401.7	2.4	83	41		
	1400	SYDN	40	F	0401.9	0402.3	2.4				
	700	SYDN	8	S	0402	0402.3	.7				
	1400	SYDN	8	S	0402	0402.2	.5				
	1400	SYDN	4	S	0406.6	0406.8	.5				
	5730	IRKU	29	PBI	0412		60	55			
	650	GORK	1	S	0514.7	0514.8	.3	1.5			
	536	ONDR	42	SER	0550.5	0605.8	17	8			
	536	ONDR	41	F	0641	0644	5	10	1		
	650	GORK	40	F	0642.7	0646.2	7.4	7			
	950	GORK	2	F	0643.4	0644.1	1.5	3.5			
	1470	BERL	3	S	0724	0724.4	1	6.3			
	3000	BERL	8	S	0724.3	0724.4	.7U	12			
	9100	GORK	20	GRF	0903.6	0914	21.5	8	4		
	9100	ARCE	1	S	0913.3	0913.9	1.5				
	33	UPIC	8	S	0913.6	0913.6	.5				
	29	UPIC	8	S	0913.7	0913.8	.7				
	113	POTS	8	S	0913.7	0913.7	.1	150	50		
	9100	ARCE	1	S	0944.1	0944.4	1.2				
	33	UPIC	2	S/F	1011.1	1011.2	.7				
	29	UPIC	2	S/F	1011.2	1011.3	.8				
	9100	GORK	21	GRF	1032.6	1054.7	52	7	3		
	10400	BERN	3	S	1037.8	1038.7	5	12	35		
	15400	SGMR	3	S	1037.8	1038.1	3.7	19.1	5.7		
	6100	KISV	4	S/F	1037	1039	5	9			
	8800	SGMR	3	S	1038	1038.9	2.4	44.2	13.3		
	9100	GORK	4	SF	1038.5	1038.8	1.6	35	17		
	9100	ARCE	3	S	1038.5	1039	1.3				
	4995	SGMR	3	S	1038.6	1038.8	3.3	12.9	3.9		
	15000	KISV	4	S/F	1038	1039	7	37			
	10715	DWIN	1	S	1038	1039	2	25	10		
	9100	ARCE	29	PBI	1039.8		7				
	9400	HUAN		S	1220.8	1222	2.2	60.4	28.4		L
	10400	BERN	3	S	1221	1222	4	22	69		
	9100	ARCE	3	S	1221.3	1222.3	2				
	9100	GORK	29	PBI	1221.5	1223	43	15			
	9100	GORK	4	SF	1221.5	1222	2	54	27		
	9500	BERL	3	S	1221.5	1222	2	66			
	8800	SGMR	3	S	1221.5	1222.1	1.6	63	13		
	15400	SGMR	3	S	1221.8	1222.1	1.2	74	15		
	10715	DWIN	1	S	1222	1223	3	50	30		
	9400	HUAN		PBI	1223	1223	33	9.8	4.9		D
	9100	ARCE	29	PBI	1223.3	1249.6	31				
	9400	HUAN		S	1240.7	1241.5	2	6.5	4.6		D
	9400	HUAN		S	1247.6	1248.8	2.6	11.4	6.7		D
	536	ONDR	8	S	1305.8	1305.8	.3	33			
	9400	HUAN		S	1313.5	1316.5	29.5	10.6	4.6		D
	10400	BERN	27	RF	1313.6	1317	12	5	15		
	9400	HUAN		S	1353	1402.2	28	4.9	3.6		D

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DAY OF MONTH	FREQUENCY	STATION	TYPE	STARTING TIME UT	TIME OF MAXIMUM UT	DURATION MINUTES	FLUX DENSITY 10^{-22} Wm^{-2} Hz^{-1} PEAK	FLUX DENSITY 10^{-22} Wm^{-2} Hz^{-1} MEAN	INT	POLARIZATION OR REMARKS
	9100	ARCE	23 GRF	1353.3	1413.3	41				
	7000	SAOP	4 S/F	1353.5	1355	26.4	40			14R
	4995	BOUL	8 S	1353	1354	2.5	26	9		
	10400	BERN	21 GRF	1354.2	1354.9	34	12	35		
	9400	HUAN	S	1354.5	1355	1.9	29.4	11.9		R
	2800	OTTA	1 S	1354.7	1355	1.5	3.6	1.7		
	9100	ARCE	3 S	1354.8	1355.1	2.6				
	9500	BERL	8 S	1355	1355	.8	25			
	9400	HUAN	S	1410	1410.7	1.1	11.4	7.8		L
	9400	HUAN	S	1411.8	1412.9	1.8	9.8	7.6		R
	113	POTS	41 F	1437	1438.5	3	125	6		
	2800	OTTA	21 GRF	1545	1653	115	16.4	4.2		
	7000	SAOP	20 GRF	1558	1601.7	20	13			16L
	2800	OTTA	21 GRF	1558	1603	15	5	2.5		
	4995	BOUL	2 SF	1600	1601	3.5	15	5		
	2800	OTTA	1 S	1601	1602	2	8.8	4.4		
	2695	BOUL	20 GRF	1601 E	1602.5U	2.5D	13	4		
	2695	BOUL	29 PBI	1603.5E	1606.5U	9 D	6	2		
	7000	SAOP	46 C	1650	1657	11	19			29R
	2800	OTTA	4 S/F	1654	1657	5	14.2	6.9		
	7000	SAOP	46 C	1737	1805.2	42	39			9R
	4995	BOUL	2 SF	1751	1756	8.5	19	6		
	8800	SGMR	3 S	1801	1803.3	14	38.1	15.4		
	10400	BERN	20 GRF	1801.6	1804.3U	10 U	7	20		
	4995	SGMR	3 S	1802	1805	13	12.3	4.9		
	9400	HUAN	S	1920	1946	41.6	12.7	6.2		L
	9400	HUAN	S	1941.4	1942.7	3.6	31.8	20.5		LRL
	9400	HUAN		1941.4	1943.2		42.9			
	2800	OTTA	22 GRF	1942	1943.6	16	3.6	1.8		
	636	SGMR	3 S	1948.7	1950.8	10.8	83.5	25		3S
	15400	SGMR	3 S	1949	1950.8	4.4	70.2	21.1		3S
	8800	SGMR	3 S	1950.6	1951.8	9.2	70.2	21.1		3S
	9400	HUAN	S	1951	1951.7	3.4	73	32.5		L
	2800	OTTA	21 GRF	2214	2224	55	6.6	3.3		
	4995	BOUL	41 F	2215	2217.5	25	10	3		
	2800	OTTA	1 S	2217.2	2218.3	5	9.2	4.4		
	2695	BOUL	28 PRE	2218 E	2219 U	11 D	7	2		
	2695	MANI	S	2228.1	2229.3	3	3 31.1	10.1		
	1415	MANI	S/F	2228.1	2229.4	2.3	4 25	8.3		
	2800	OTTA	3 S	2228	2229.3	6	17.8	7		
	2695	BOUL	20 GRF	2229 E	2230.5	3.5D	35	12		
	2695	BOUL	29 PBI	2232.5E	2232.5	13 D	14	5		
5	2695	PENT	21 GRF	0030		76 D	12.6			
	636	MANI	S	0101.7	0101.8	.5	8 41.7	13.9		
	200	HIRA	27 RF	0110	0133	35	45	20		ML
	100	HIRA	27 RF	0115	0150	135	250	100		ML
	5730	IRKU	45 C	0120	0125.5	16	40 D			L
	5730	IRKU		0120	0127.4		26			R
	5730	IRKU		0120	0126.4		40 D			L
	4995	BOUL	4 SF	0122	0125.5	7	83	28		
	4995	MANI	S	0123.4	0126.2	6.1	3 135.3	45.1		
	8800	MANI	S	0123.5	0126.2	4.9	3 258.3	86.1		
	2695	MANI	S	0124.1	0126.6	3.9	3 27.7	9.2		
	2695	PENT	3 S	0124.5	0126.2	13	20.4	6.8		
	17000	NOBE	3 S	0124.7	0126.6	4.7	40			0
	2930	VORO	3 S	0140	0145	15	42			
	5730	IRKU		0141	0147.2		81			R
	5730	IRKU		0141	0145.8		201			R
	5730	IRKU		0141	0145.3		146			L
	5730	IRKU	46 C	0141	0144.5	23	56			R
	35000	NAGO	22 GRF	0141	0204	44	14			
	4995	MANI	S/F	0143.3	0145.5	8.2	4 140.3	46.8		
	8800	MANI	S/F	0143.5	0149.3	13.7	4 177.1	59		
	2695	MANI	S/F	0144	0145.7	4.1	4 58.8	19.6		
	1415	MANI	S/F	0144.5	0145.2	2.9	4 13.7	4.6		
	17000	NOBE	21 GRF	0144.8	0157.2	49	16			0
	2695	PENT		0144	0146	2 D	53			
	5730	IRKU	29 PBI	0204		44	13			
	17000	NOBE	1 S	0213.1	0213.4	.6	17			0
	100	GORK	44 NS	0305 E		79		5		
	200	GORK	44 NS	0305 E		595 D		10		
	221	ABST	44 NS	0500	0644.8	480	57			
	260	ONDR	44 NS	0544 E		509 D	152	17		
	127	TORN	44 NS	0720 E	0934.2	170 U	53	3.5		V1
	282	IZMI	43 NS	0840		200	90			
	410	SGMR	44 NS	0912 E	1549	900 D	97			
	245	SGMR	44 NS	0912 E	1546.2	900 D	932			
	2950	GORK	20 GRF	0343 U	0357.7	38	13	6.5		
	9100	GORK	20 GRF	0347	0348.9	15.5	10	4		
	228	HARS	45 C	0401.2	0402	2.2	420	140		
	606	MANI	4 GB	0402.2	0402.4	.5	7 7400	4400		SPIKE
	1415	MANI	S	0402.3	0402.4	.5	8 16.5	5.5		III
	100	GORK		0407.7	0410.1		195 D			
	103	GORK	41 F	0407.7	0407.7	7.2	198			

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				UT	UT	MINUTES	PEAK	MEAN		
5	100	GORK		0407.7	0414.1		195			
	9100	GORK	20 GRF	0422	0428.8	14	6	3		
	2950	GORK	21 GRF	0424		333				
	650	GORK		0454	0524 U		1600 D			
	650	GORK	47 GB	0454	0518 U	169.5	1600 D			
	650	GORK		0454	0529 U		1600 D			
	9100	GORK	21 GRF	0455.5		286				
	5730	IRKU	48 C	0457	0509.5	90	42 D			R
	5730	IRKU		0457	0533.6		800			R
	5730	IRKU		0457	0515		42 D			R
	2950	GORK	46 C	0458.4	0517.5	46	670			
	2950	GORK		0458.4	0533.5		1050			
	228	HARS	49 GB	0459	0527.5	118	460	60		
	500	HIRA	48 C	0459.6	0516.6	120	13000	500		SL
	200	HIRA		0500	0533.5		400			ML
	200	HIRA	48 C	0500	0518.5	120	330	120		WL
	100	HIRA	48 C	0501	0543	120	1500	100		ML
	606	MANI	4 GB	0502	0517.2	64	715000	2000		
	1415	MANI	4 GB	0502	0520.5	72	714300	3000		
	4995	MANI	4 GB	0502	0533.7	72	7 3500	1200		
	2695	MANI	4 GB	0502	0533.7	72	7 4400	1600		
	9100	GORK		0502.5	0534		2420			
	9100	GORK		0502.5	0517.3		256			
	9100	GORK	46 C	0502.5	0510.3	54	93			
	8800	MANI	4 GB	0503	0533.7	71	7 4400	1500		
	950	GORK	47 GB	0505.2	0508	110	66			
	950	GORK		0505.2	0515		5000 D			
	950	GORK		0505.2	0510.9		389			
	950	GORK		0505.2	0533.4		1900			
	950	GORK		0505.2	0520.6		11000			
	200	GORK	46 C	0505.2E	0506.1	31.6	30 D			
	200	GORK		0505.2E	0533.7		600			
	200	GORK		0505.2E	0518.2		500			
	100	GORK		0505 U	0542.3		2780			
	100	GORK		0505 U	0533		2750			
	100	GORK	46 C	0505 U	0516.5	59	1280			
	17000	NOBE	28 PRE	0509.2	0525.6	16.3	75			0
	33	UPIC	48 C	0509.6	0532.6	39.1				
	29	UPIC	48 C	0510.2	0533.1	38.6				
	35000	NAGO	28 PRE	0511	0524	13	30			
	35000	NAGO	47 GB	0524	0537	46	1160			
	17000	NOBE	47 GB	0525.6	0537.2	32.6	1340			0
	33	UPIC	29 PBI	0548.7	0650.6U	65.8				
	29	UPIC	29 PBI	0548.8	0643.7	68.7				
	536	ONDR	49 GB	0554 E	0554 E	66	143	28		
	35000	NAGO	29 PBI	0610	0610	114 D	135			SUNSET
	202	IZMI	25 R	0620	0642.8	35	440	100		
	930	BORD	40 F	0626 E	0628.4	59 D	50 U			
	5730	IRKU	29 PBI	0627		70	96			R
	9500	BERL	20 GRF	0640 E		205 D				
	1470	BERL	21 GRF	0640 E		230 D				
	3000	BERL	20 GRF	0640 E		175 D				
	536	ONDR	29 PBI	0709 E	0709.2	50	84	10		
	200	HIRA	46 C	0744.5	0745	4	1000	200		WR
	228	HARS	45 C	0744.5	0745	3.7	460	25		
	100	HIRA	7 C	0744.7	0745	1	3500	200		WL
	113	POTS	4 S/F	0744.7	0744.7	.8	1600	70		
	234	POTS	4 S/F	0744.7	0745.1	2.8	160	3		
	202	IZMI	45 C	0745	0745	3	665	220		
	113	POTS	41 F	0803.9	0804.7	1	800	80		
	202	IZMI	5 S	0804.5	0804.5	.3	220	100		
	536	ONDR	23 GRF	0850		47	23	15		
	650	GORK	20 GRF	0854	0923	44	9	4.5		
	228	HARS	47 GB	0855	0917	46	420	85		
	234	POTS	41 F	1020	1049.5	30	1150	3		
	7000	SAOP	40 F	1128						
	2800	OTTA	240 R	1200	1215	15	3.4	1.7		
	113	POTS	4 S/F	1204.1	1204.3	.6	2800	200		
	9400	HUAN	S	1248	1249.5	4.7	17.7	8.6		R
	9500	BERL	3 S	1248.8	1249.9	2	15			
	1415	SGMR	1 S	1254.3	1255.2	1.7	8.2	2.4		
	10400	BERN	3 S	1258.4	1259.9	10	5	16		
	2800	OTTA	240 R	1305	1310	5	2	.8		
	9400	HUAN	S	1309.5	1336.7	27.2	9.7	5.8		R
	2800	OTTA	20 GRF	1311	1315.5	45	6.4	3.2		
	7000	SAOP	24 R	1316						
	234	POTS	42 SER	1424	1426.9	5.9	420	5		
	9400	HUAN	S	1533.7	1546.3	50.9	11.3	5		L
	228	HARS	45 C	1535	1537.2	5.6	930	270 U		
	245	SGMR	49 GB	1535.8	1541	23.7	1520	608		3G
	410	SGMR	6 S	1535.8	1542	23.7	64.7	25.9		3G
	1415	SGMR	3 S	1536	1548.6	23.8	32.9	13.2		3G
	15400	SGMR	3 S	1536.5	1552.8	26.5	19.4	7.8		3G
	7000	SAOP	45 C	1536.7	1548.8	22.6	29			41L
	9400	HUAN	S	1537.2	1538.3	2.1	12.9	10.8		L

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	606	SGMR	3	S	1537.3	1548.5	22.2	50.9	20.4		3G
	4995	SGMR	3	S	1537.5	1548.7	23.2	28.6	11.4		3G
	2800	OTTA	3	S	1537.6	1538.5	2.4	15.2	7.6		
	2695	SGMR	3	S	1537.8	1548.8	24.5	94.7	37.9		3G
	2800	OTTA	240	AR	1537	1640	63	5			
	1420	BOUL	42	SER	1537	1538.5	14 D	27	9		
	1420	BOUL			1537	1548.5	14 D	31	10		
	2650	OWIN	45	C	1537	1549	16	120	15		
	930	BORD	40	F	1537	1548.8	16	32	5		
	8800	SGMR	3	S	1538.8	1549	21.4	22.2	8.9		3G
	2695	BOUL	21	GRF	1538 E	1539.5	3 D	27	9		
	2800	OTTA	30	PBI	1540	1540	25	7.4	3.7		
	4995	BOUL	3	S	1546	1547.5	5	22	7		
	2800	OTTA	4	S/F	1547.5	1548.6	4.5	50	13		
	9400	HUAN		S	1547.8	1548.7	2.2	14.5	7.2		L
	2695	BOUL	45	C	1548 E	1549.5	4.5D	113	38		
	7000	SAOP	40	F	1601						
	930	BORD	8	S	1602.2	1602.2	.1	55	1		
	9400	HUAN		S	1708.1	1714	14.5	8	4.4		0
	9400	HUAN		S	1822	1823.5	5.3	35.4	16.3		0
	2800	OTTA	21	GRF	1925	2104	165	6.4	3		
	9400	HUAN		S	2010.5	2011.7	6.2	12.9	8.4		0
	606	SGMR	3	S	2036.5	2038.2	16.5	43	13		
	2800	OTTA	1	S	2037.4	2038	5	3.2	1.6		
	1415	SGMR	3	S	2037.5	2038.1	17.3	16.7	5		
6	200	HIRA	43	NS	0000	0332	240	80	15		0
	200	GORK	43	NS	0320.3		85.7		5		
	2695	PENT	3	S	0024.4	0025.5	2.6	18.8	9.4		
	2695	PENT	29	PBI	0027	0027	20	7.4	3.6		
	2695	BOUL	20	GRF	0028 E	0030	6 D	13	4		
	2695	BOUL	29	PBI	0034 E	0034	36 D	6	2		
	200	GORK	4	SF	0311.4	0319.7	9	450			
	100	GORK			0315.2	0316.7		115			
	100	GORK	46	C	0315.2	0315.6	6.5	115			
	100	GORK			0315.2	0319.8		190			
	650	GORK	29	PBI	0354.5	0359.4	21.6	2			
	650	GORK			0354.5	0358.9		11.5			
	650	GORK	45	C	0354.5	0355.9	4.9	13			
	8800	ATHN		GRF	0354.5	0355.6	5.7	39.5	23.7		
	2695	ATHN		GRF	0354.5	0355.6	5.7	39.5	23.7		
	4995	ATHN		GRF	0354.5	0355.6	5.7	40	24		
	1415	ATHN		GRF	0354.6	0355.7	5.6	42.1	25.3		
	9100	GORK	21	GRF	0354.6	0357	24.5	9	4		
	1415	MANI		S	0354.7	0355.6	5.8	3 29.4	9.8		
	2950	GORK	29	PBI	0354.9	0357	14.5	7	3.5		
	2950	GORK			0354.9	0355.8		41			
	2950	GORK	45	C	0354.9	0355	2	12	6		
	950	GORK	46	C	0355	0356.2	4.8	28			
	950	GORK			0355	0358.9		17			
	9100	GORK	2	F	0355	0355.8	1.3	20			
	200	HIRA	7	C	0355	0356	1.5	700	200		0
	700	SYDN	45	C	0355	0355.9	1				
	1400	SYDN	4	S	0355.1	0355.7	1.2				
	500	HIRA	46	C	0355.1	0358.4	4	90	35		SL
	4995	MANI		S	0355.1	0355.5	.6	3 26.2	8.7		
	606	MANI		S/F	0355.3	0358.6	5.2	4 18.3	6.1		
	2695	MANI		S	0355.3	0355.5	1.7	3 31.8	10.6		
	100	HIRA	7	C	0355.5	0356	1	930	500		
	100	GORK			0355.7	0356.3		820			
	103	GORK	45	C	0355.7	0355.8	1.2	200			
	228	MARS	45	C	0401.6	0402.6	2	630	210		
	100	GORK			0402	0402.2		690			
	100	GORK	45	C	0402	0402.1	1.2	200			
	9100	GORK	1	S	0404.8	0405	.8	14	7		
	100	GORK			0415.8	0419		60			
	100	GORK			0415.8	0417		200			
	100	GORK	41	F	0415.8	0416	5	145			
	9100	GORK	1	S	0444.2	0444.5	.8	5	3		
	9100	GORK	40	F	0458.9	0459.5	19	10			
	221	ABST	44	NS	0500	0649	120	19			
	260	ONDR	44	NS	0510 E		540 D	98	3		
	200	HIRA	43	NS	0610	0640	95	30	20		0
	245	SGMR	44	NS	0912 E	2133.2	900 D	184			
	410	SGMR	44	NS	0912 E	2133.2	900 D	368			
	200	HIRA	43	NS	2000	2220	510	60	10		0
	9100	GORK	20	GRF	0524	0528.4	11	15	6		
	2950	GORK	1	S	0528	0529.1	4	3.6	1.8		
	9100	GORK	20	GRF	0558.2	0600.2	47	18	7		
	10400	BERN	27	RF	0648	0702.4	27	4	12		
	9100	GORK	40	F	0656.6	0709.3	42	16			
	9100	ARCE	22	GRF	0701	0709.7	16				
	9100	GORK	21	GRF	0743.8	0746.9	18.8	11	5		
	10400	BERN	21	GRF	0744.5	0745.4	10	6	19		
	9500	BERL	3	S	0745	0745.5	2	25			

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	9100	GORK	1 S	0745.1	0745.6	1.2	24	12		
	9100	ARCE	3 S	0745.1	0745.7	5				
	10715	DWIN	1 S	0745	0746	2	15	10		
	9100	ARCE	1 S	0756.4	0757.6	5.6				
	9100	GORK	1 S	0828	0828.3	1	5	2.5		
	9100	GORK	1 S	0837.3	0839.4	5.3	4.5	2		
	8800	ATHN	S/F	0907.6	0908.6	6.7	84	25.2		
	15000	KISV	4 S/F	0907	0909	8	79			
	6100	KISV	4 S/F	0907	0909	6	20			
	9100	ARCE	3 S	0908.1	0908.8	5.1				
	9100	GORK	3 S	0908.3	0908.7	4.5	68	33		
	4995	ATHN	GRF	0908.4	0909.1	5.6	11.8	7.1		
	10715	DWIN	1 S	0908	0909	4	50	25		
	9100	ARCE	29 PBI	0913.2		105				
	3100	CRIM	24 R	0925	1200	155 D	8			
	113	POTS	8 S	1031.5	1031.6		220	70		
	9100	ARCE	21 GRF	1125.6	1138.1	61				
	10400	BERN	1 S	1131.2	1132.9	14	4	12		
	9100	GORK	22 GRF	1131.7	1133	50	20			
	9100	ARCE	1 S	1132.4	1133.1	2				
	9100	ARCE	1 S	1157.7	1158.1	.8				
	9400	HUAN	S	1238.3	1239.4	2.8	6.8	3.2		O
	930	BORD	8 S	1259	1259.1	.3	51	2		
	930	BORD	8 S	1304.5	1304.7	.5	77	1		
	9400	HUAN	S	1325.2	1338.2	44.5	5.1	3.9		L
	10400	BERN	27 RF	1333.4	1335.2	9	2	6		
	9400	HUAN	S	1334.5	1335.3	1.4	12	8.9		O
	536	ONDR	3 S	1335.2	1335.2	.2	24			
	9100	ARCE	1 S	1335	1335.5	.8				
	1415	SGMR	3 S	1409	1414.3	10.8	8.1	2.4		
	2695	SGMR	13 S	1409.4	1415		19.4			
	2695	SGMR	13 S	1409.4	1409.8	7.6	87.5	26.3		
	4995	SGMR	2 S	1414	1415.2	4	10.2	3.1		
	245	SGMR	3 S	1414.2	1414.6	1.6	11.6	3.5		
	930	BORD	8 S	1415	1415.2	.2	18	1		
	2800	OTTA	21 GRF	1430	1440	80	4.4	2.4		
	1470	BERL	1 S	1433	1435	5	5.4			
	2800	OTTA	1 S	1433	1434.5	3	3.8	1.9		
	3000	BERL	3 S	1434	1435	2	6.6			
	930	BORD	8 S	1434.4	1434.7	.6	23	2		
	9400	HUAN	S	1515.5	1516.7	2.3	10.2	5.1		L
	930	BORD	8 S	1601.5	1601.5	.1	49	2		
	2800	OTTA	21 GRF	1800	1810	60	3.4	1.7		
	2800	OTTA	1 S	1805	1807	4	4.4	2.2		
	2800	OTTA	21 GRF	2000	2050	130	7.6	3.8		
	606	SGMR	3 S	2103.7	2110.6	77.3	155	47		SWF
	500	HIRA	46 C	2104	2110	15	95	40		WR
	1420	BOUL	28 PRE	2104.5E	2105.5	2 D	13	4		
	1415	SGMR	3 S	2104.8	2109.2	17.7	71	21		SWF
	2695	SGMR	3 S	2105.1	2109.8	16.2	220	44		SWF
	1420	BOUL	21 GRF	2106.5E	2109	5.5D	73	24		
	4995	BOUL	28 PRE	2106.5	2109 U	2.5D	82	27		
	2695	BOUL	28 PRE	2106 E	2107.5U	2.5D	14	5		
	4995	SGMR	3 S	2107	2109.2	13.2	308	62		SWF
	410	SGMR	6 S	2107	2109.2	11	66	20		SWF
	15400	SGMR	3 S	2107	2109.3	8.2	135	27		SWF
	8800	SGMR	3 S	2107.2	2109.3	12.8	303	61		SWF
	245	SGMR	6 S	2107.5	2115.9	12.5	83	25		SWF
	9400	HUAN	C	2107.5E	2109.4U	11.1	292.1	100.7		L
	2800	OTTA	4 S/F	2107	2109.7	15	204	65		
	2695	BOUL	45 C	2108.5E	2110.5	7.5D	224	75		
	17000	NOBE	45 C	2108.9	2109.6	10.2	107			O
	4995	BOUL	3 S	2109 E	2109.5	1.5D	273	91		
	4995	BOUL	29 PBI	2110.5E	2113.5	54 D	122	41		
	1420	BOUL	29 PBI	2112 E	2112	9.5D	31	10		
	2695	BOUL	29 PBI	2116 E	2116	10 D	35	12		
	9400	HUAN	PBI	2118.6	2118.6	32.4	29	22.5		L
7	200	GORK	44 NS	0300 E		515 D		5		
	221	ABST	44 NS	0500	0843	420	9			
	260	ONDR	44 NS	0545 E		420 D	111	3		
	410	SGMR	44 NS	0911 E	2235.6	902 D	28.8			
	245	SGMR	44 NS	0911 E	1724.3	902 D	189			
	200	HIRA	44 NS	1930 E	0210	865 D	30	10		WLWR
	100	GORK		0320.7	0321.1		100			
	100	GORK	45 C	0320.7	0320.9	.9	90			
	9100	GORK	20 GRF	0426.2	0433.8	29	8	4		
	6100	KISV	4 S/F	0650	0658	20	9			
	9100	GORK	23 GRF	0655.7	0659.7	15	13	6		
	10400	BERN	3 S	0656.3	0657.8	10	7	21		
	9500	BERL	29 PBI	0656.5	0658	13	21			
	9100	ARCE	4 S/F	0656.8	0658	2.2				
	9100	GORK	4 SF	0656.9	0657.8	2	21	10		
	9100	ARCE	29 PBI	0659		10.2				
	228	HARS	45 C	0842.2	0842.8	1.4	390	80		

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DAY OF MONTH	FREQUENCY	STATION	TYPE	STARTING TIME	TIME OF MAXIMUM	DURATION	FLUX DENSITY 10^{-22} Wm^{-2} Hz^{-1}		INT	POLARIZATION OR REMARKS
				UT	UT	MINUTES	PEAK	MEAN		
	100	HIRA	7 C	0843	0843.5	1	2800	1000		WL
	200	HIRA	7 C	0843	0843.5	1	900	500		WR
	100	GORK	8 S	0843.2	0843.4	.7	160 D			
	202	IZMI	5 S	0843.2	0843.2	.7	750	380		
	113	POTS	8 S	0843.3	0843.5	.5	1800	600		
	234	POTS	8 S	0843.3	0843.5	.5	350	100		
	950	GORK	1 S	0843.3	0843.6	1	4	2		
	536	ONDR	42 SER	0843.3	0843.3	11	18			
	650	GORK	1 S	0843.5	0843.5	1.9	6			
	9100	ARCE	20 GRF	0903.6	0914.7	110				
	930	BORD	8 S	0922.7	0922.7	.1	16	1		
	536	ONDR	3 S	1112.4	1112.4	.2	24			
	2800	OTTA	20 GRF	1140	1200	35	4	2		
	650	GORK	1 S	1146.5	1146.7	1	4			
	950	GORK	2 SF	1146.5	1146.9	1.5	8			
	930	BORD	41 F	1146	1146.8	2	10	2		
	930	BORD	8 S	1201.5	1201.5	.1	33	1		
	930	BORD	41 F	1217	1217	.3	15	2		
	228	HARS	45 C	1309.2	1310.8	4.5	320	50		
	606	SGMR	3 S	1310.3	1312.4	3.7	39.1	11.7		3G
	1415	SGMR	3 S	1310.3	1312	3.7	31	9.3		3G
	234	POTS	4 S/F	1310.5	1311.8	1.9	280	1		
	1470	BERL	4 S/F	1310.5	1312.3	3.5	26			
	113	POTS	4 S/F	1310.6	1311.8	2	5000	250		
	245	SGMR	7 S	1310.6	1312.1	3.4	311	93.3		3G
	410	SGMR	6 S	1310.8	1312.1	3.4	46.3	13.9		3G
	4995	SGMR	3 S	1310.8	1312.1	3.6	13.1	3.9		3G
	930	BORD	46 C	1310	1312.5	4	31	6		
	2800	OTTA	3 S	1311.5	1312	2.5	17.8	4.5		
	3000	BERL	3 S	1311.7	1312.2	1.8	14			
	1420	BOUL	4 SF	1311 E	1312	3 D	31	10		
	2695	SGMR	3 S	1312.2	1314.5	1	24.3	7.3		3G
	2650	OWIN	1 S	1312	1312.5	1	25	10		
	9400	HUAN	S	1321.2	1404.8	88.1	6.7	6.2		R
	2800	OTTA	20 GRF	1340	1420	80	13.2	8.8		
	113	POTS	4 S/F	1420.4	1420.6	.3	200	20		
	9400	HUAN	S	1420.6	1421	1.1	8.4	6.4		R
	4995	BOUL	8 S	1500.5	1502.5	4.5	57	19		
	2800	OTTA	240 R	1505	1530	25	8	6		
	930	BORD	8 S	1548.3	1548.3	.1	33	1		
	4995	BOUL	40 F	1628	1635.5	11.5	11	4		
	2800	OTTA	20 GRF	1705	1755	135	9.2	5		
	9400	HUAN	S	1711	1713.5	7.8	7.6	4.3		O
	4995	BOUL	4 SF	1727	1728.5	9.5	16	3		
	9400	HUAN	S	1736.7	1737.1	1.4	10.1	6.5		O
	4995	BOUL	4 SF	1757.5	1759.5	8	11	4		
	9400	HUAN	S	1851.4	1851.8	1.5	6.7	6.1		R
	2930	VORO	45 C	2105	2110	20	217			
	245	SGMR	7 S	2205.2	2206.2	1.8	260	78		
	410	SGMR	6 S	2205.8	2206	1.2	195	58.5		
	606	SGMR	3 S	2206.4	2206.8	2.4	60.5	18.2		
	1415	SGMR	1 S	2206.7	2207.6	2.6	5.5	1.6		
	2695	PENT	23 GRF	2240	2340	115	8.8	3.8		
	4995	BOUL	4 SF	2321.5	2325	5.5U	23	8		
	2695	PENT	1 S	2324	2325	6	5.6	2.6		
	4995	BOUL		2332	2335		63	21		
	4995	BOUL	45 C	2332	2334	10.5	63	21		
	4995	MANI	S/F	2334.1	2336	7.1	4 85.1	28.4		
	2695	MANI	S	2334.2	2339.1	7.1	1 10.8	3.6		
	8800	MANI	S/F	2334.4	2336	6	4 96.7	32.2		
	17000	NOBE	3 S	2334.4	2336.2	4.6	24			O
	1415	MANI	S	2334.8	2335.5	5.2	1 8.4	2.8		
	2695	PENT	1 S	2334	2337	5	9.4	6.6		
8	700	SYDN	40 F	0100.5	0102.9	4.6				
	1400	SYDN	4 S	0102.3	0102.8	.8				
	950	GORK	3 S	0320	0320.5	2	20	10		
	200	GORK	44 NS	0340.3E		559.7D		5		
	221	ABST	44 NS	0500	1107.8	420	11			
	260	ONDR	44 NS	0545 E		506 D	78	2		
	228	HARS	45 C	0418.2	0419.4	4	650	140		
	650	GORK	23 GRF	0418.6	0434.1	24.2	3.5			
	606	MANI	S/F	0419	0420.3	4	4 32.9	10.9		
	1415	MANI	S/F	0419	0420.6	4.4	4 13.9	4.6		
	2695	MANI	S	0419	0420.3	3	3 12.6	4.2		III
	500	HIRA	4 S/F	0419.1	0420	2.5	35	20		MR
	200	GORK		0419.5	0429.7		150 D			
	200	GORK	46 C	0419.5	0420.5	12.6	400			
	100	GORK	41 F	0419.6	0420.3	8.2	1560			
	100	GORK		0419.6	0427.8		50			
	950	GORK	5 S	0419.8	0420.5	3	16	8		
	200	HIRA	46 C	0419	0420	3	1000	150		MR
	100	HIRA	7 C	0420	0420	2	18000	5000		WL
	650	GORK	4 SF	0420	0420.4	1.6	19	6		
	2950	GORK	1 S	0420.1	0420.4	.7	8	4		

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DAY OF MONTH	FREQUENCY	STATION	TYPE		STARTING TIME	TIME OF MAXIMUM	DURATION	FLUX DENSITY 10^{-22} Wm^{-2} Hz^{-1}		INT	POLARIZATION OR REMARKS
					UT	UT	MINUTES	PEAK	MEAN		
8	950	GORK	2	SF	0429	0429.2	2.5	3			
	9100	GORK	1	S	0429.1	0429.9	7.2	3	1.5		
	650	GORK	1	S	0536	0538.1	4.3	6			
	950	GORK	1	S	0538	0538.1	2	1.5			
	100	GORK	8	S	0538	0538.3	.8	70			
	200	GORK	2	SF	0538	0538.2	.8	35 D			
	650	GORK	1	S	0549.1	0551.7	7	2			
	536	ONDR	42	SER	0550.5	0613.2	26	22			
	100	GORK	46	C	0700.6	0700.8	1.7	140			
	100	GORK			0700.6	0701.1		160 D			
	9100	ARCE			0704.4	0718.2	34.6				
	9100	ARCE	20	GRF	0704.4	0718.2	100				
	200	GORK	1	S	0704.7	0704.9	.7	15			
	650	GORK	8	S	0707	0707.1	.3	8	4		
	3100	CRIM	1	S	0707.5	0708	1	9	3		
	2950	GORK	21	GRF	0708.2	0713.8	25.7	9.3	4.5		
	3100	CRIM	28	RPF	0710	0712.5	3.5	10			
	9100	GORK	21	GRF	0710.2	0748.3	65	13	6		
	100	GORK			0710.7	0711.3		35			
	100	GORK	45	C	0710.7	0711.1	.9	40			
	6100	KISV	4	S/F	0711	0718	14	20			
	3000	BERL	4	S/F	0712	0714.6	7	39			
	3100	CRIM	30	PBI	0713.5	0716	20	20			
	3100	CRIM	7	C	0713.5	0714.2	2.5	60	20		
	2950	GORK	46	C	0713.8	0714.7	6.4	39			
	2950	GORK			0713.8	0717.6		15	7.5		
	5730	IRKU	2	S	0714	0717.7	11	24			L
	1470	BERL	4	S/F	0714.5	0716	3.5	9			
	2650	DWIN	45	C	0714	0715	11	85	20		
	4995	ATHN		GRF	0715.9	0717.7	5.1	35.7	21.5		
	950	GORK	1	S	0716.2	0716.4	.5	2	1		
	8800	ATHN		GRF	0716.5	0717.8	7.1	29.2	17.5		
	9100	GORK	1	S	0716.8	0717.6	2.5	8	4		
	9500	BERL	1	S	0717	0717.9	3	8.1			
	3100	CRIM	1	S	0717	0717.5	1.5	11	4		
	650	GORK	8	S	0727.7	0727.9	.9	17			
	536	ONDR	42	SER	0728	0728	18.5	21			
	100	GORK			0736.5	0746.8		20			
	100	GORK			0736.5	0740.4		170			
	100	GORK	41	F	0736.5	0736.8	9.8	60			
	200	GORK			0738.8	0745.1		20			
	200	GORK	46	C	0738.8	0741.5	6.3	15			
	9100	ARCE			0739	0746.4	65.4				
	113	POTS	4	S/F	0740.4	0740.5	.1	175	35		
	10400	BERN	27	RF	0743	0745.7	16	4	12		
	5730	IRKU	1	S	0743.5	0745.6	7	12			R
	2950	GORK	1	S	0743.8	0745.2	5	7	3.5		
	6100	KISV	4	S/F	0743	0746	14	14			
	3100	CRIM	1	S	0744	0745.5	4	11	4		
	650	GORK	40	F	0744.5	0745.8	2.1	4.5			
	950	GORK	1	S	0744.7	0744.8	.9	1			
	9100	GORK	1	S	0744.7	0745.7	3	12	6		
	3100	CRIM	21	CRF	0826	0857	74	11			
	9100	GORK	41	F	0853	0857	21	5			
	9100	GORK			0853	0909.2		7			
	9100	GORK			0853	0905.2		6			
	2950	GORK	20	GRF	0853.5	0857.4	12	8	4		
	245	SGMR	1	S	0911 E	1939.4	903 D	209			
	410	SGMR	1	S	0911 E	0922.4	903 D	142			
	100	GORK			0916	0923.6		20000			
	100	GORK			0916	0922.8		2000 D			
	100	GORK	46	C	0916	0919.5	8.5	2000 D			
	9100	GORK	21	GRF	0918.5	0922.6	17	5	2.5		
	3100	CRIM	3	S	0919	0919.5	1	31	10		
	1470	BERL	42	SER	0919	0919.5	5.5	3.8			
	3000	BERL	42	SER	0919	0919.5	6	35			
	113	POTS	4	S/F	0919	0922.7	7.5	28000	600		
	950	GORK	1	S	0919.1	0919.8	1.2	4	2		
	29	UPIC	45	C	0919.3	0922.4	4.9				
	650	GORK	8	S	0919.4	0919.7	.8	22	10.5		
	200	GORK	4	SF	0919.4	0919.8	5.8	30 D			
	2950	GORK	3	S	0919.4	0919.8	1.2	45	22		
	9500	BERL	8	S	0919.5	0919.6	.8	13			
	9100	GORK	1	S	0919.6	0919.7	.5	19	9		
	9100	ARCE	1	S	0919.7	0919.7	6				
	2650	DWIN	1	S	0919	0919.5	1	35	10		
	6100	KISV	4	S/F	0919	0919.3	1	11			
	408	TRST	41	F	0921.4	0922.3	2.9	420			
	536	ONDR	45	C	0921.6	0922.3	5.5	88	5		
	202	IZMI	41	F	0921.7	0922.8	2.2	100			
	650	GORK	2	SF	0922	0922.8	2.6	32	6.5		
	9100	GORK	20	GRF	1007.2	1008.8	10.8	6	3		
	650	GORK			1045.9	1051.3		2.5			
	650	GORK	41	F	1045.9	1047.2	8	16.5			
	536	ONDR	42	SER	1046	1112	42	18			

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DAY OF MONTH	FREQUENCY	STATION	TYPE	STARTING TIME UT	TIME OF MAXIMUM UT	DURATION MINUTES	FLUX DENSITY 10^{-22} Wm^{-2} Hz^{-1} PEAK	FLUX DENSITY MEAN	INT	POLARIZATION OR REMARKS
	8800	SGMR	3 S	1048.2	1051.1	4.4	21.2	6.4		
	950	GORK	1 S	1048.3	1051	1	3	1.5		
	6100	KISV	4 S/F	1048	1051	9	14			
	4995	SGMR	3 S	1049.7	1051.2	2.5	23.6	7.1		
	200	GORK	2 SF	1049.7	1050	.7	25 D			
	1415	SGMR	3 S	1050.3	1052	2.1	12.3	3.7		
	9100	GORK		1050.5	1051.3		17			
	9100	GORK	45 C	1050.5	1051	1.9	12			
	2950	GORK	1 S	1050.6	1051.3	3	5	2.5		
	2695	SGMR	1 S	1050.6	1051.4	7.5	6.9	2.1		
	9100	ARCE	1 S	1050.7	1051.4	2.8				
	100	GORK	45 C	1051	1051.1	.6	25			
	100	GORK		1051	1051.3		140			
	29	UPIC	45 C	1104.1	1105.1	1.8				
	127	TORN	41 F	1106 U	1115.1	20 U	24			
	2800	OTTA	24 R	1128	1135	7	3.6	1.8		
	2800	OTTA	27F RF	1128		172	3.6	3		
	2800	OTTA	24P R	1135		120	3.6			
	1470	BERL	8 S	1143.3	1143.5	.4	8			
	1470	BERL	8 S	1158.5	1158.7	.5	6.4			
	9100	GORK	22 GRF	1223	1223.4	12	6			
	2800	OTTA	26 FAL	1335	1420	45	-3.6	-1.8		
	606	SGMR	3 S	1500.1	1502.5	3.7	93	19		3G,SWF
	2695	ATHN	S	1500.4	1502.5	4.5	20.6	6.2		
	4995	ATHN	S/F	1500.5	1502.5	5.8	69.4	20.8		
	8800	ATHN	S/F	1501.2	1502.5	6.3	74.7	22.4		
	1415	SGMR	1 S	1501.4	1502.8	2.8	6	3.2		3G,SWF
	4995	SGMR	3 S	1501.5	1502.1	1.8	74	15		3G,SWF
	1420	BCUL	3 S	1501.5E	1502	2.5D	18	6		
	10400	BERN	3 S	1501.5	1502.6	13	14	43		
	2800	OTTA	3 S	1501.9	1502.9	2.5	17.4	5.8		
	9400	HUAN	S	1502	1502.6	2.5	55.8	20.5		L
	410	SGMR	6 S	1502	1502.5	1.5	45	8.9		3G,SWF
	8800	SGMR	3 S	1502.2	1502.8	1.6	71	14		3G,SWF
	15400	SGMR	3 S	1502.3	1502.4	.9	16	3		3G,SWF
	1415	ATHN	S	1502.4	1502.8	1.7	17.3	5.2		
	9100	ARCE	3 S	1502.6	1502.9	2.6				
	2695	SGMR	3 S	1502.7	1503.1	1.3	20	4		3G,SWF
	10715	DWIN	1 S	1502	1503	2	25	10		
	2650	DWIN	1 S	1502	1503	2	20	10		
	9100	ARCE	29 PBI	1505.2		6.6				
	9400	HUAN	S	1532.5	1538.5	59.9	5.1	2		L
	9100	ARCE	1 S	1534.3	1534.6	.9				
	10400	BERN	22 GRF	1538.1	1538.5	1.5	3	9		
	2800	OTTA	240 R	1645	1652	7	4.6	2		
	4995	BCUL	4 SF	1822.5	1827	7	25	8		
	4995	SGMR	3 S	1824.8	1827.6	5.5	22.9	9.2		3G
	2800	OTTA	24 R	1825	1840	15	4	2		
	2800	OTTA	27 RF	1825		135	4	3.5		
	2800	OTTA	24P R	1840		100	4			
	200	HIRA	44 NS	1930 E	2030	865 D	25	10		0
	9400	HUAN	S	2020.4	2021.2	1.6	11.8	4		0
	2800	OTTA	26 FAL	2020	2040	20	-4	-2		
	2800	OTTA	21 GRF	2120	2227	130	8.8	3.5		
	4995	SGMR	3 S	2130.8	2133.4	4.8	36.5	10.9		3G
	4995	BOUL	3 S	2131	2133.5	5	25	8		
	2800	OTTA	3 S	2132	2134.5	4	10.8	6		
	2800	OTTA	29 PBI	2136	2136	30	4.6	3.6		
	9400	HUAN	S	2157.1	2158.2	2.3	30.4	14.2		L
	8800	SGMR	3 S	2157.7	2158.6	2.3	27.1	8.1		
	2800	OTTA	22 GRF	2231	2241	17	10	4.3		
	2800	OTTA	1 S	2300	2300.5	1	4	2.2		
	2695	PENT	20 GRF	2356		110 D	19.4			
9	100	HIRA	46 C	0136	0138	4	2000	200		WL
	200	HIRA	46 C	0137	0138	2	1500	200		WL
	200	GORK	44 NS	0305.4		414.6D		10		
	221	ABST	44 NS	0500	1008.8	360	13			
	260	ONDR	44 NS	0540 E		522 D	118	7		
	536	ONDR	43 NS	0548		453	72			
	29	UPIC	43 NS	0622	1009.9	650.1				
	127	TORN	44 NS	0720 E	1236.3	460 D	300	7		V1
	410	SGMR	44 NS	0911 E	1918	903 D	108			
	245	SGMR	44 NS	0911 E	1459.7	903 D	399			
	200	HIRA	44 NS	1930 E	0245	865 D	70	25		WLWR
	200	GORK	2 SF	0450.1	0450.5	1.3	30			
	100	GORK	8 S	0450.3	0450.5	1.3	300			
	100	GORK	41 F	0508.2	0508.2	2.3	310			
	100	GORK		0508.2	0509.6		370 D			
	9100	GORK	1 S	0549.7	0550.2	1.9	6	3		
	6100	KISV	4 S/F	0717	0723	13	9			
	9100	ARCE	20 GRF	0721.6	0723.7	21.6				
	9100	GORK	20 GRF	0721.9	0723.7	16	7	3.5		
	9100	GORK	20 GRF	0846.9	0854.6	24	7	3.5		
	10400	BERN	3 S	0914	0914.3	1.5	4	10		

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DAY OF MONTH	FREQUENCY	STATION	TYPE	STARTING TIME UT	TIME OF MAXIMUM UT	DURATION MINUTES	FLUX DENSITY 10^{-22} Wm^{-2} Hz^{-1} PEAK	FLUX DENSITY MEAN	INT	POLARIZATION OR REMARKS
	9100	ARCE	21 GRF	0914.2	1027.5	120				
	9100	GORK	22 GRF	0914.4	0915	43	10			
	930	BORD	8 S	0954.5	0954.5	.1	21	1		
	4995	ATHN	S	1008.6	1009.8	3.4	18.6	5.6		
	8800	ATHN	S	1008.8	1009.8	5.2	36.2	10.9		
	410	SGMR	48 GB	1008.8	1009.8	1.7	684	137		
	536	ONDR	4 S/F	1008.8	1009.3	2	117	36		
	127	TORN	45 C	1008.9	1009.5	1.8	340	100		
	6100	KISV	4 S/F	1008	1009.3	3	14			
	202	IZMI	5 S	1009	1009.8	1.5	465	220		
	113	POTS	4 S/F	1009	1009.6	1.3	70000	250		
	408	TRST	47 GB	1009	1009.8	1.5	160 D			
	10400	BERN	3 S	1009.1	1009.8	3	6	19		
	245	SGMR	48 GB	1009.1	1009.9	1.8	955	191		
	9500	BERL	1 S	1009.2	1009.7	1.3	10			
	808	ONDR	4 S/F	1009.2	1010.3	2	50	7		
	228	HARS	45 C	1009.2	1009.8	1.6	1550	410		
	234	POTS	8 S	1009.5	1009.7	.5	8800	900		
	1470	BERL	8 S	1009.5	1009.8	.5	2.4			
	606	SGMR	3 S	1009.5	1010.3	2	363	73		
	9100	ARCE	1 S	1009.7	1010	3.2				
	29	UPIC	45 C	1009.7	1009.9	2.8				
	3000	BERL	3 S	1056.5	1057	1.7	8.3			
	1470	BERL	1 S	1056.5	1057.3	2	4.8			
	1470	BERL	4 S/F	1201.4	1202.1	2.1	11			
	930	BORD	41 F	1201.6	1201.7	.4	48	1		
	410	SGMR	48 GB	1225.8	1226.7	2	768	230		
	408	TRST	45 C	1226.1	1226.7	.9	910			
	245	SGMR	6 S	1226.3	1227.5	3.2	144	43.2		
	606	SGMR	3 S	1226.4	1226.6	.6	40.7	12.2		
	113	POTS	8 S	1226.4	1226.4	.1	150	50		
	930	BORD	41 F	1232.5	1232.7	1.5	15	2		
	9400	HUAN	S	1326.8	1335.3	44.4	9.3	3.6		L
	2800	OTTA	21 GRF	1440	1640	170	8.4	4.4		
	9400	HUAN	S	1443.1	1453.3	32.9	6.2	3.2		0
	9400	HUAN	S	1550.3	1601.2	88.3	9.3	4.8		0
	228	HARS	45 C	1559.6	1559.8	2	1450	310		
	410	SGMR	6 S	1600	1600.8	1.2	37.8	11.3		
	245	SGMR	48 GB	1600	1600.4	1.2	1500	450		
	9400	HUAN	S	1602.3	1603	1.3	23.2	10		R
	10400	BERN	8 S	1602.6	1603	1	6	17		
	9400	HUAN	S	1609.3	1610.5	2.4	7.7	3.3		L
	410	SGMR	6 S	1624	1624.9	2.1	118.5	35.5		5
	245	SGMR	48 GB	1624.6	1625.6	1.6	1310	392		5
	606	SGMR	3 S	1624.6	1624.9	.8	40.6	12.2		5
	2800	OTTA	8 S	1624.8	1624.9	.6	9.8	4.6		
	9400	HUAN	S	1738.6	1746	68	6.2	2.3		R
	2800	OTTA	26 FAL	1740	1835	55	-6.2	-3.1		
	9400	HUAN	S	1741.3	1741.7	.9	4.6	3.6		R
	2800	OTTA	240 R	1910	1940	30	4.8	2.4		
	2800	OTTA	22 GRF	2155	2240	180	15.2	6		
10	15000	KISV	4 S/F	0120	0306	103	50			
	100	GORK	44 NS	0255 E		423		10		
	200	GORK	44 NS	0257 E		421.5D		10		
	221	ABST	44 NS	0500	0647	240	15			
	202	IZMI	44 NS	0600		360	30			
	260	ONDR	44 NS	0600 E		490 D	58	3		
	127	TORN	44 NS	0630 E		510 D	28	25		V1
	29	UPIC	43 NS	0640	0913.8	372.5				
	245	SGMR	44 NS	0911 E	1207.2	903 D	84.6			
	410	SGMR	44 NS	0911 E	1115.5	903 D	38.5			
	200	HIRA	44 NS	1930 E	0550	865 D	30	15		MR
	650	GORK	20 GRF	0300 E	0300	85 U	9			
	6100	KISV	4 S/F	0603	0609	10	8			
	113	POTS	4 S/F	0637.7	0642	10	3500	70		
	100	GORK		0638.4	0641 U		490 D			
	100	GORK	46 C	0638.4	0638.6	7.6	490			
	100	GORK		0638.4	0645.5		6450			
	100	GORK		0638.4	0642.4		4950			
	100	GORK		0638.4	0642		5780			
	127	TORN	48 C	0638.7	0642.2	7	540 U			SUNRISE
	536	ONDR	42 SER	0642	0902.2	140	72			
	10400	BERN	21 GRF	0730.1	0908.9	180	49	144		
	1470	BERL	21 GRF	0803	0940	262	13			
	3000	BERL	21 GRF	0803	0905	174	50			
	9500	BERL	20 GRF	0803	0909	167	112			
	3100	CRIM	1 S	0805	0806.5	3	7	2		
	2950	GORK	1 S	0806.3	0807.3	2.5	6	3		
	9100	GORK	21 GRF	0818	0818.5	100	90			
	3100	CRIM	3 S	0822	0824	3	17	5		
	3100	CRIM	29 PBI	0822	0824.5		10			
	2950	GORK	21 GRF	0822.2		72				
	2950	GORK	1 S	0823.1	0824	2.1	14.5	7		
	9100	ARCE	20 GRF	0823.3	0909.3	120				

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	9100	GORK	1 S	0823.9	0825.4	3.6	13	6		
	2950	GORK	3 S	0826	0829.3	6.3	17			
	3100	CRIM	20 CRF	0838	0905	108	25	8		
	6100	KISV	4 S/F	0840	0857	50	46			
	8800	ATHN	GRF	0841.2	0908.4	55.1	122.4	73.4		
	4995	ATHN	GRF	0841.4	0858	55.3	76.6	45.9		
	2695	ATHN	GRF	0842.9	0857.6	48.3	41.8	25.1		
	1415	ATHN	GRF	0844.7	0849	31	47.1	28.3		
	1415	MANI	S/F	0846	0849.7	21.4	4 74.8	24.5		
	650	GORK	2 SF	0846.1	0851.2	7	6			
	930	BORD	40 F	0846	0847.7	7	14	2		
	4995	MANI	S/F	0847	0858.4	18.8	4 102.6	34.2		
	950	GORK	1 S	0847.1	0847.6	.7	8	4		
	1470	BERL	4 S/F	0847.5	0849.2	4.5	57			
	2695	MANI	S/F	0848.2	0900.9	17.8	4 21.6	7.2		
	606	MANI	S/F	0850.3	0902.7	13.7	4 144.8	48.3		
	8800	MANI	S/F	0852.5	0903.9	13.7	4 198.9	66.3		
	650	GORK	22 GRF	0856.3	0901.5	10.2	22			
	950	GORK		0857	0901.3		18			
	950	GORK	45 C	0857	0858.1	7.3	23			
	1470	BERL	4 S/F	0857	0900.5	9	43			
	930	BORD	40 F	0857	0903	10	52	5		
	113	POTS	4 S/F	0900	0911.1	21	2000	70		
	9100	GORK		0900.3	0909.1		51			
	9100	GORK	45 C	0900.3	0905.4	18.2	37			
	127	TORN	48 C	0900.3	0909 D	18	530			
	100	GORK		0903.3	0911.2		26680			
	100	GORK		0903.3	0910.5		23960			
	100	GORK	46 C	0903.3	0904.2	18	530			
	2800	OTTA	26 FAL	1140	1230	50	-5.8	-3		
	9400	HUAN	S	1235.3	1241.7	41	9.6	3.4		O
	9400	HUAN	S	1250.4	1251	1.4	4.8	2.8		R
	9400	HUAN	S	1350.9	1408	41.8	3.2	2.2		O
	2695	PENT	2 S/F	1412.5	1414	3	8.2	3		
	10400	BERN	1 S	1412.6	1413.7	2	4	10		
	4995	BOUL	8 S	1412	1412.5	1.5	16	5		
	4995	ATHN	GRF	1413	1414.4	2.3	12.6	7.6		
	2695	ATHN	GRF	1413.1	1414.3	2.1	7.1	4.2		
	9100	ARCE	1 S	1413.1	1414	1.6				
	9400	HUAN	S	1413.2	1413.8	1.4	11.2	7.2		L
	8800	ATHN	GRF	1413.5	1413.8	.9	10.2	6.1		
	9400	HUAN	S	1445.6	1509.2U	31.2	6.4	2.8		O
	2800	OTTA	22 GRF	1450	1507	50	6.2	3.1		
	4995	BOUL	42 SER	1630.5	1631.5	47	21	7		
	9400	HUAN	S	1732.9	1811.7	100.8	20.7	10.6		L
	4995	SGMR	3 S	1757.6	1800.5	9.8	52.5	15.8		
	4995	BOUL	45 C	1757	1800	8.5	41	14		
	2800	OTTA	4 S/F	1757	1800.7	9	39.6	19.6		
	1415	SGMR	1 S	1758	1801.2	11	8.7	2.6		
	8800	SGMR	3 S	1758.4	1800.7	12.1	38.2	11.5		
	2695	SGMR	3 S	1758.5	1801	8.8	48.6	14.6		
	2695	BOUL	20 GRF	1758.5E	1801	8 D	32	11		
	15400	SGMR	3 S	1800	1800.9	7	11.5	3.5		
	9400	HUAN		1800.1	1802.9		21.5			L
	9400	HUAN	C	1800.1	1800.7	5	22.3	15		L
	606	SGMR	1 S	1801.4	1801.6	.8	8.2	2.5		
	2695	BOUL	29 PBI	1806.5E	1806.5U	22 D	12	4		
	2800	OTTA	29 PBI	1806	1806	70	13.6	4.6		
	9400	HUAN	S	1856.8	1857.1	1.2	9.6	4.8		O
	9400	HUAN	S	1925.6	1939.5	26.6	4.8	1.4		L
	9400	HUAN	S	2005.5	2006.2	2	12.8	7.7		L
	9400	HUAN	S	2108.6	2113.6	14.1	9.6	5.3		O
11	4995	BOUL	4 SF	0108.5	0109.5	2 U	19	6		
	200	GORK	44 NS	0312 E		582 D		15		
	221	ABST	44 NS	0500	0708	260	12			
	260	ONDR	44 NS	0543 E		509 D	169	9		
	232	IZMI	43 NS	0600		480	60			
	127	TORN	44 NS	0630 E	1300 U	510 D		45		
	100	GORK	43 NS	0920		121		5		
	410	SGMR	44 NS	0910 E	1749.2	905 D	57.2			
	606	SGMR	44 NS	0910 E	1752.7	905 D	158			
	245	SGMR	44 NS	0910 E	1701.2	905 D	392			
	536	ONDR	43 NS	1058		194 D	55	3		
	234	POTS	43 NS	1117	1244	205 D	200			
	113	POTS	43 NS	1126	1257.5	200 D	1000			
	100	GORK	43 NS	1150 E		70		80		
	100	HIRA	44 NS	1930 E	2250	865 D	580	400		SR
	200	HIRA	44 NS	1930 E	2050	865 D	300	120		HR
	8800	ATHN	GRF	0443.1	0446.4	7.4	16.3	9.8		
	9100	GORK	20 GRF	0444.5	0446.7	62	14	7		
	4995	ATHN	GRF	0444.9	0446	9.8	21.2	12.7		
	5730	IRKU	1 S	0445	0446.4	6	9			R
	2695	ATHN	GRF	0445.3	0445.9	4.4	14	8.4		
	1415	ATHN	GRF	0445.5	0447.9	7.4	6.9	4.1		

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11	200	GORK	4	SF	0512.8	0513	.9	150			
	100	GORK	8	S	0512.8	0513.1	1	860 D			
	3100	CRIM	3	S	0618	0621.5	5	27	9		
	200	GORK	4	SF	0630.1	0630.8	1.8	150			
	100	GORK			0630.2	0630.5		250			
	100	GORK	46	C	0630.2	0630.2	.9	920			
	950	GORK	1	S	0648	0651.5	6	2			
	202	IZMI	7	C	0706.5	0707	.7	400	160		
	9100	GORK	20	GRF	0730	0735.1	19	15	7		
	10400	BERN	3	S	0733.3	0735.1	2	4	11		
	5730	IRKU	1	S	0734.2	0735.2	5	5			L
	9100	ARCE	1	S	0734.2	0735.2	2.8				
	200	GORK	4	SF	0755	0756.2	2	150			
	100	GORK			0755.2	0756.1		250			
	100	GORK	46	C	0755.2	0755.7	1.7	190			
	650	GORK	20	GRF	0757	0824	84	6	3		
	9100	GORK	1	S	0802.7	0804.8	6.3	18	9		
	9100	ARCE	20	GRF	0802.8	0805.1	18				
	9500	BERL	4	S/F	0802.9	0804.7	7.1	17			
	5730	IRKU	1	S	0803	0804.8	10	8			L
	9100	GORK	22	GRF	0850.5	0859.4	12	10	5		
	408	TRST	3	S	0954.2	0954.2	.2	74			
	930	BORD	41	F	1004.6	1004.7	.4	30	2		
	9100	GORK	22	GRF	1008	1019.5	16	7	3		
	9100	GORK	23	GRF	1046.8	1100.2	130	10			
	100	GORK			1052.7	1104		1140			
	100	GORK			1052.7	1101		1150			
	100	GORK			1052.7	1100		1155			
	100	GORK			1052.7	1055.3		1150			
	100	GORK	41	F	1052.7	1053.7	15.6	1130			
	650	GORK			1059.2	1104.4		6			
	650	GORK			1059.2	1101.3	9	9			
	113	POTS	4	S/F	1059.4	1100.3	2.2	63000	70		
	606	SGMR	3	S	1059.5	1100	2.1	25.3	7.6		3G,5
	405	TRST	41	F	1059.8	1101.1	5.8	100 D			
	245	SGMR	6	S	1059.9	1100.1	5.1	47.3	14.2		3G,5
	410	SGMR	7	C	1059.9	1104.6		34.3			4,5,SWF
	410	SGMR	7	C	1100	1100.3	5.2	104	31.2		3G,5
	950	GORK	1	S	1100.7	1101.1	.9	9.3			
	200	GORK	4	SF	1101	1101.6	1.2	140 D			
	930	BORD	41	F	1101	1101	.7	25	2		
	2800	OTTA	23	GRF	1125	1253	130	10.6	3.6		
	202	IZMI	25	R	1140	1243	140	430	130		
	127	TORN	25	R	1150 U	1205 U		115			
	650	GORK	21	GRF	1206 E	1215 U	54	11			
	8800	SGMR	3	S	1219.7	1225.2	25.3	263	78.9		4,5,SWF
	4995	SGMR	3	S	1219.9	1225	8.6	225	67.5		4,5,SWF
	410	SGMR	7	C	1220	1225.2		435			4,5,SWF
	410	SGMR	7	C	1220	1221.2	10	203	131		4,5,SWF
	245	SGMR	49	GB	1220	1224.2		732			4,5,SWF
	245	SGMR	49	GB	1220	1221.2	9	157	220		4,5,SWF
	29	UPIC	4	S/F	1220.8	1221	.6				
	408	TRST	42	SER	1220.9	1225	6	1100			
	606	SGMR	45	C	1220.9	1224.9		153			4,5,SWF
	606	SGMR	45	C	1220.9	1221	6.5	414	124		4,5,SWF
	100	GORK			1221	1225.6		760			
	100	GORK			1221	1224.8		755			
	650	GORK	8	S	1221	1221.2	.4	72	36		
	100	GORK			1221	1223.9		620			
	100	GORK	46	C	1221	1221	6	755			
	10400	BERN	3	S	1222.8	1225	25	77	233		
	6100	KISV	45	C	1222	1225	18	122			
	15000	KISV	45	C	1222	1225	8	79 D			
	9500	BERL	3	S	1223	1225	5	182			
	9400	HUAN		C	1223.1	1225.1	4.6	211.3	122.5		L
	8800	ATHN		S/F	1223.2	1225	8.5	339.9	10.2		
	9100	GORK	4	SF	1223.3	1225.1	6.7	260			
	9100	ARCE	4	S/F	1223.5	1225.2	3.7				
	2800	OTTA	3	S	1223.5	1225	4.5	73.8	18.4		
	4995	ATHN		S/F	1223.5	1225	8.2	213.2	6.4		
	2695	ATHN		S/F	1223.5	1225.1	8.2	80.3	24.1		
	15400	SGMR	3	S	1223.5	1223.5	3.7	199	59.7		4,5,SWF
	3000	BERL	3	S	1223.5	1225	4	83			
	29	UPIC	45	C	1223.7	1225	4.2				
	650	GORK	40	F	1224	1225	3	45			
	2695	SGMR	3	S	1224	1225.6	3.6	87.1	26.1		4,5,SWF
	2950	GORK	3	S	1224.2	1225.3	2	22	11		
	1470	BERL	3	S	1224.5	1225.4	2.5	15			
	1415	SGMR	3	S	1224.6	1225.4	2.8	11.1	3.3		4,5,SWF
	950	GORK	2	SF	1224.8	1225.5	1.4	7			
	1415	ATHN		GRF	1224.9	1225.1	5.7	15.7	9.4		
	10715	DWIN	4	S/F	1224	1225	6	160	50		
	2650	DWIN	3	S	1224	1225	5	70	30		
	9100	ARCE	29	PBI	1227.2		7				
	2800	OTTA	29	PBI	1228	1228	12	4.8	3		

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	9100	GORK	1	S	1236.8	1237	1.4	7	3.5		
	9100	ARCE	1	S	1236.9	1237.2	1.6				
	8800	ATHN		GRF	1242.5	1244.1	3.6	4.8	2.9		
	1415	SGMR	1	S	1242.5	1244.3	5	7.9	2.4		
	1470	BERL	3	S	1242.5	1244.3	4	8			
	9500	BERL	1	S	1243	1244	3	8.7			
	650	GORK	2	SF	1243	1244.6	4.4	14	4.5		
	950	GORK	2	SF	1243.1	1244	1.8	4.4			
	4995	ATHN		GRF	1243.3	1244.1	2.2	7.8	4.7		
	2695	ATHN		GRF	1243.3	1244	3	24.4	14.7		
	3000	BERL	3	S	1243.4	1244	2.6	15			
	9100	GORK	1	S	1243.4	1244.3	1.8	10	5		
	9100	ARCE	1	S	1243.5	1244.5	5.7				
	2950	GORK	1	S	1243.7	1244.2	1.7	5.1			
	2800	OTTA	3	S	1243	1244.1	4	16.6	8		
	1420	BOUL	8	S	1244 E	1244.5	1 D	135	45		
	1420	BOUL	8	S	1318.5E	1319	1 D	133	44		
	606	SGMR	3	S	1517.3	1519	3.1	41.8	12.5		
	29	UPIC	45	C	1653.7	1655	2.5				
	1420	BOUL	2	SF	1750.5E	1751	1.5D	8	3		
	2800	OTTA	8	S	1751.4	1751.4	.1	8.6			
	930	BORO	41	F	1751	1751.1	2.6	33	2		
	500	HIRA	22	GRF	2000 E	2024	360 D	90	30		SR
	9400	HUAN		S	2035.1	2036.5	2.6	15.7	9.4		L
	9400	HUAN		S	2113.3	2114.4	3	11	6		O
	2800	OTTA	1	S	2252	2253.5	3	2.4	1.2		
12	100	GORK	44	NS	0300 E		600		240		
	221	ABST	44	NS	0500	0751.8	360	47			
	260	ONDR	44	NS	0542 E		510 D	125	17		
	200	GORK	44	NS	0554.5E		607 D		65		
	202	IZMI	44	NS	0600		360	100			
	113	POTS	44	NS	0600 E	0843	520 D	350			
	234	POTS	44	NS	0600 E	0800	270 D	175			
	127	TORN	44	NS	0630 E		165 D		300		V1
	410	SGMR	44	NS	0910 E	2056.8	906 D	64.8			3G,CONT
	208	HIRA	44	NS	1930 E	2115	865 D	500	100		MR
	100	HIRA	44	NS	1930 E	2020	865 D	670	230		SR
	2950	GORK	3	S	0346.4	0346.7	.8	30	15		
	650	GORK	23	GRF	0527.3	0623	246	24	10		
	9100	GORK	1	S	0538.9	0540	3.3	11	5		
	5730	IRKU	1	S	0539	0540.2	6	9	3		L
	536	ONDR	23	GRF	0542 E	0618.8	218	55	26		
	950	GORK	1	S	0546.5	0546.7	.8	8.5			
	5730	IRKU			0552.5	0553.5	8	4	2		L
	3100	CRIM	3	S	0644	0649.5	8	228	76		
	3100	CRIM	29	PBI	0644	0652	18	8			
	9100	ARCE	21	GRF	0644.3	0647	11				
	950	GORK	5	S	0644.5	0648.4	7.3	77	38		
	9100	GORK	23	GRF	0644.9	0649.5	18	14	7		
	6100	KISV	45	C	0644	0649	16	135			
	10400	BERN	4	S/F	0645.2	0648.2	10	60	176		
	5730	IRKU	2	S	0645.5	0648.6	9	50	10		L
	15000	KISV	45	C	0645	0649	15	38 D			
	8800	ATHN		S/F	0646.5	0648.3	3.6	128	38.4		
	2695	ATHN		S/F	0646.5	0648.3	5.8	168.7	50.6		
	4995	ATHN		S/F	0646.5	0648.3	5.8	193.6	58.1		
	1415	ATHN		S/F	0646.5	0648.3	4.5	95.7	28.7		
	606	MANI		S/F	0646.8	0649	7.9	4 33	11		
	10715	DWIN	45	C	0646	0648	5	150	50		
	2650	DWIN	45	C	0646	0648	8	120 D			
	1415	MANI		S/F	0647	0649.1	7.8	4 75.3	25.1		
	650	GORK	2	SF	0647	0648.3	3.3	19	7		
	2695	MANI		S/F	0647	0649	2.8	4 152.9	51		
	9100	GORK	4	SF	0647.4	0648.2	1.8	220			
	9100	ARCE	3	S	0647.5	0648.4	3				
	2950	GORK	3	S	0647.7	0648.3	1.5	100	50		
	17000	NOBE	4	S/F	0647.8	0648.2	1.2	164			L
	4995	MANI		S/F	0648.5	0649	1.3	4 129.3	43.1		
	8800	MANI		S/F	0648.5	0649.2	1.5	4 216.5	72.2		
	3100	CRIM	1	S	0811.5	0812	1	5	2		
	245	SGMR	44	MS	0910 E	2324.6	906 D	110			3G,CONT
	2800	OTTA	20	GRF	1127	1133	28	2.6			
	292	IZMI	7	C	1129.8	1130	.7	650	330		
	2800	OTTA	21	GRF	1200	1240	65	4.4	2.2		
	9100	ARCE	1	S	1216.8	1217.2	1				
	9100	GORK	20	GRF	1228.7	1231	12	8			
	2800	OTTA	1	S	1229.5	1231	3.5	4.6	2.3		
	9100	ARCE	1	S	1240.4	1240.7	.8				
	9100	ARCE	1	S	1254.2	1254.3	.5				
	536	ONDR	42	SER	1259	1319.3	57	10			
	9100	ARCE	1	S	1404.5	1404.9	1				
	2800	OTTA	26	FAL	1710	1750	40	-3.6	-1.8		
	9400	HUAN		S	1753.3	1804.3	25.1	4.8	3.8		O
	9400	HUAN		S	1800.2	1801.1	2.8	14.4	7.7		O

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DAY OF MONTH	FREQUENCY	STATION	TYPE	STARTING TIME UT	TIME OF MAXIMUM UT	DURATION MINUTES	FLUX DENSITY 10^{-22} Wm^{-2} Hz^{-1} PEAK	FLUX DENSITY MEAN	INT	POLARIZATION OR REMARKS
	2800	OTTA 20 GRF		1822	1826	38	9.8	4.4		
	9400	HUAN S		1824.2	1828.5	14.5	4	2.6		O
	2800	OTTA 32 ABS		1905	1920	35	-3.2	-1.6		
	4995	BOUL 3 S		2111	2112	9	62	21		
	17000	NOBE 3 S		2112.3	2112.9	4.2	51			O
	9400	HUAN		2112.3	2113		122.9			
	9400	HUAN S		2112.3	2112.7	7.4	105.3	38.7		ROL
	2695	PENT		2112.8	2113.3	2.5				
	2800	OTTA 1 S		2112.8	2113.3	2.5	8.4	4.2		
	1420	BOUL 3 S		2252 E	2253	1.5D	22	7		
	1420	BOUL 29 P8I		2253.5E	2253.5	1 D	4	1		
	2695	PENT 22 GRF		2305	2410	145	13.2	4.4		
13	5730	IRKU 2 S		0230	0233.3	9	12	2		L
	200	GORK 44 NS		0254 E		546 D		30		
	100	GORK 44 NS		0300 E		540		100		
	221	ABST 44 NS		0500	0940	110	12			
	260	ONDR 44 NS		0545 E		507 D	67	24		
	234	POTS 44 NS		0552 E	1446	554 D	280			
	202	IZMI 44 NS		0600		420	100			
	536	ONDR 43 NS		0610		310	25	8		
	113	POTS 44 NS		0629 E	1505	517 D	7000			
	127	TORN 44 NS		0630 E	0919.6	550 D	2300	500		V1
	410	SGMR 44 NS		0910 E	1455	907 D	109			CONT
	245	SGMR 44 NS		0910 E	1438.2	907 D	580			CONT
	606	SGMR 43 NS		1443.3	1548	573.7D	27.8			CONT
	200	HIRA 44 NS		1930 E	2100	525 D	150	55		MR
	100	HIRA 44 NS		1930 E	2050	525 D	600	500		SR
	29	UPIC 4 S/F		0526.1	0527.1	1.9				
	33	UPIC 4 S/F		0526.2	0527.1	1.8				
	5730	IRKU 20 GRF		0707	0611.6	12	9	4		L
	650	GORK 20 GRF		0715	0807	114	6.4	3		
	3100	CRIM 20 CRF		0941	1117	140	12	4		
	650	GORK 20 GRF		0948	1010.5	48	5	2.5		
	650	GORK 21 GRF		1049.7	1100 U	34.3	5.4	2.7		
	650	GORK 1 S		1056.5	1057.4	1.5	4.5	2.2		
	650	GORK 1 S		1100.3	1102.4	3.5	4.5	2.2		
	2800	OTTA 20 GRF		1110	1122	40	2.6	1.3		
	2800	OTTA 20 GRF		1453	1510	45	4.2	2.1		
	9400	HUAN S		1617.2	1630.3	19.9	5.9	2.8		L
	2800	OTTA 20 GRF		1617	1630	30	4.6	2.4		
	500	HIRA 22 GRF		2000 E	2111	220 D	45	18		SR
	2695	PENT 20 GRF		2305	2348	110	8.4	2.8		
14	200	GORK 44 NS		0306 E		594 D		10		
	100	GORK 44 NS		0309 E		530		30		
	221	ABST 44 NS		0500	0728.5	300	9			
	260	ONDR 44 NS		0540 E		510 D	50	6		
	127	TORN 44 NS		0630 E		520 D		85		V1
	245	SGMR 44 NS		0910 E	1754	907 D	196			CONT
	410	SGMR 44 NS		0910 E	1331.1	907 D	169			CONT
	606	SGMR 43 NS		1119	1301	131	15.1			CONT
	9100	GORK 1 S		0427.1	0428.1	2	6	3		
	2950	GORK 3 S		0427.9U	0428.2	1.3	30	15		
	2950	GORK 1 S		0430.8	0431	2.1	20	10		
	950	GORK 3 S		0440.5	0440.7	.6	33	16		
	650	GORK 8 S		0441.7	0441.8	.3	12	6		
	6100	KISV 4 S/F		0621	0628	19	5			
	950	GORK		0624	0627.6		14			
	950	GORK 46 C		0624	0625.5	4.3	20			
	650	GORK 40 F		0626.2	0627.5	3.8	6			
	536	ONDR 2 S/F		0627	0627.8	2	18	2		
	113	POTS 4 S/F		0807.5	0807.7	1.1	700			
	650	GORK 8 S		0827	0827.1	.2	4.5	2.2		
	650	GORK 8 S		0908	0908.3	.2	4.5	2.2		
	536	ONDR 42 SER		0950	1115.5	87	20			
	650	GORK 8 S		1027.3	1027.4	.4	10.5	4.5		
	536	ONDR 42 SER		1253	1322.5	40	17			
	245	SGMR 6 S		1317.3	1318.5	5.5	8.7	2.6		5,
	410	SGMR 6 S		1318	1321	7.2	83.2	24.9		5,
	9400	HUAN S		1318.2	1321.5	37.8	4.9	2		O
	9100	ARCE 20 GRF		1318.3	1321.7	38.4				
	606	SGMR 1 S		1318.4	1318.8	5.6	9.5	2.9		5,
	1415	SGMR 3 S		1318.4	1318.6	7.6	36.1	10.3		5,
	1470	BERL 42 SER		1318.5	1319.1	7	29			
	1420	BOUL 8 S		1318 E	1318.5	1.5D	38	13		
	930	BORD 41 F		1321	1323	5	39	3		
	1420	BOUL 2 SF		1322 E	1323.5	2 D	12	4		
	2800	OTTA 20 GRF		2110	2127	110	2.6	1.5		
15	100	HIRA 44 NS		0000 E	0025	595 D	200	75		SR
	200	HIRA 44 NS		0000 E	0130	595 D	15	10		WR
	200	GORK 44 NS		0248 E		612 D		5		
	100	GORK 44 NS		0255 E		290 D		15		
	260	ONDR 44 NS		0547 E		503 D	14			

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					UT	UT	MINUTES	PEAK	MEAN		
	127	TORN	44	NS	0630 E	1007.8	520 D	24	5		V1
	245	SGMR	44	NS	0910 E	1857.5	907 D	100.2			
	410	SGMR	44	NS	0910 E	1304.6	907 D	21			
	536	ONDR	45	C	0743	0744.4	2	24	2		
	234	POTS	8	S	1234.1	1234.3	.4	1200	400		
	260	ONDR	8	S	1234.5	1234.5	.3	226 D			
	9400	HUAN		S	1332.4	1344.2	18.3	6.3	2.8		R
	2800	OTTA	20	GRF	1615	1623	20	2.4	1.2		
	9400	HUAN		S	1751.8	1800.3	17.4	4.7	2.7		R
	2800	OTTA	1	S	2126	2127.5	4	2.4	1		
16	200	HIRA	44	NS	0000 E	0210	480 D	20	15		SR
	200	GORK	44	NS	0257 E		416 D		5		
	100	GORK	44	NS	0300 E		90 U		5		
	260	ONDR	44	NS	0610 E		472 D	24			
	245	SGMR	44	NS	0910 E	1813	908 D	15.1			
	410	SGMR	44	NS	0910 E	1832.5	908 D	6.5			
	113	POTS	4	S/F	0640.2	0640.2	.9	180	10		
	113	POTS	41	F	0933.6	0933.9	.4	120	5		
	2695	BOUL	40	F	1317 E	1318.5	10.5D	15	5		
	930	BORD	41	F	1339.6	1339.7	.8	39	2		
	9400	HUAN		S	1609.7	1631.5	36.1	8.4	2.8		R
	2695	PENT	26	FAL	1725	1750	25	-3.2	-1.6		
	2695	PENT	27A	RF	1805		80	3.2	2.7		
	2695	PENT	24	R	1805	1810	5	3.2	1.4		
	2695	PENT	24P	R	1810		55	3.2			
	2695	PENT	1	S	1830	1833	10	3.2	1.6		
	9400	HUAN		S	1831.8	1845	27	6.7	3.6		0
	2695	PENT	26	FAL	1905	1925	20	-3.2	-1.6		
	2695	PENT	24O	R	2130	2200	30	3	1.5		
	2695	PENT	20	GRF	2225	2250	80	7.4	3.7		
17	1415	MANI		S	0056.9	0057.1	1.1	3 138.5	36.2		
	8800	MANI		S	0057.2	0057.4	.6	3 323.1	107.7		
	200	GORK	43	NS	0512		277		5		
	260	ONDR	44	NS	0620 E		470 D	64			
	221	ABST	43	NS	0727	0750	40	13			
	245	SGMR	44	NS	0910 E	1915.7	909 D	441.6			
	29	UPIC	4	S/F	0903.2	0903.4	.7				
	33	UPIC	4	S/F	0903.2		1.1				
	113	POTS	41	F	0934.5	0935.9	1.4	600	55		
	202	IZMI	41	F	0959.6	1000	.8	200			
	113	POTS	41	F	0959.9	1002.3	5.4	5600	70		
	33	UPIC	46	C	1001.4	1003.9	16.3				
	29	UPIC	46	C	1002.4	1003.9	3.8				
	234	POTS	41	F	1002.4	1004.2	1.9	770	2		
	536	ONDR	8	S	1003.6	1003.6	.3	192			
	408	TRST	4	S/F	1004.1	1004.1	.1	59 D			
	808	ONDR	45	C	1018.2	1018.2	2	141	15		
	260	ONDR	8	S	1104.3	1104.3	.3	199			
	33	UPIC	4	S/F	1110.5	1110.7	1.4				
	29	UPIC	2	S/F	1110.5	1110.8	.7				
	113	POTS	4	S/F	1110.5	1110.6	.4	1400	280		
	113	POTS	42	SER	1134.3	1135.7	13	1400	1 E		
	536	ONDR	45	C	1207.7	1209.1	4	211	13		
	113	POTS	46	C	1215.2	1218.2	7.3	11000	200		
	29	UPIC	48	C	1216.5		4				
	228	HARS	45	C	1216.5	1217	5	400	35		
	33	UPIC	48	C	1216	1217.8U	5.9				
	1415	SGMR	3	S	1217	1219.6	.7	27	5.4		5
	234	POTS	41	F	1217.1	1218.2	5.4	2300	8		
	606	SGMR	47	GB	1217.4	1219.5	3.4	570	171		5
	245	SGMR	48	GB	1217.5	1219.6	4.9	984	295		5
	260	ONDR	45	C	1217.5	1219.6	4	182	13		
	210	SGMR	48	GB	1217.6	1219.5	3.4	1220	366		5
	930	BORD	41	F	1217.8	1218.6	2.7	270	2		
	408	TRST	42	SER	1218	1219.8	3.2	720 D			
	1470	BERL	4	S/F	1218	1218.4	2	13			
	3000	BERL	1	S	1218	1218.2	1	5.3			
	113	POTS	4	S/F	1245.6	1245.7	.5	100	6		
	113	POTS	42	SER	1300.7	1304.8	15	7000	8		
	228	HARS	45	C	1304	1304	1	250	45		
	234	POTS	4	S/F	1304.5	1304.8	.8	280	7		
	2800	OTTA			1330		70 D	7.6			
	113	POTS	4	S/R	1429.6	1429.8	.3	280	15		
	9400	HUAN		S	1522	1522.5	1.6	5.1	3.1		0
	9400	HUAN		S	1532.3	1559.7	34.1	6	1.8		R
	410	SGMR	7	C	1636	1646.8		2.1			5
	410	SGMR	7	C	1636	1637.4	11	5.7	1.7		5
	606	SGMR	3	S	1636.2	1636.6	.7	12.8	3.8		5
	245	SGMR	6	S	1641	1642.5	7	60.9	18.3		5
	2800	OTTA	1	S	1746.5	1747.5	2.5	4.4	1.8		
	4995	SGMR	3	S	1748	1749.2	5.7	8.2	2.5		
	606	SGMR	3	S	1748	1749.5	4	5.4	1.6		
	1415	SGMR	3	S	1748	1749.2	3.4	9.4	2.8		

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	245	SGMR	48 GB	1748	1748.5	5.2	575	172		
	410	SGMR	6 S	1748	1748.5	2.9	24.4	7.3		
	9400	HUAN	S	1748.3	1749.5	2.8	13.6	6.5		R
	8800	SGMR	3 S	1748.4	1749	2.6	26.5	8		
	228	HARS	45 C	1748.5	1748.5	2	425	50		
	1420	BOUL	3 S	1748 E	1749	2.5D	14	5		
	2800	OTTA	1 S	1850	1850.4	1	2.6	1.3		
18	200	GORK	43 NS	0252 E		357 D		5		
	260	ONDR	44 NS	0540 E		508 D	57			
	228	HARS	45 C	0411.2	0411.7	1.5	80	10		
	228	HARS	45 C	0433	0433.5	1.5	80	20		
	202	IZMI	41 F	0619.5	0623.5	10	200			
	200	GORK	4 SF	0619.7	0624.5	11.5	40 D			
	113	POTS	42 SER	0620	0627	20	8400	50		
	200	HIRA	42 SER	0620	0623.5	9	200	15		WR
	5730	IRKU		0621	0625.2		11			R
	5730	IRKU	45 C	0621	0623.8	7	20			L
	3100	CRIM	3 S	0622	0623	4	120 D			
	10400	BERN	4 S/F	0622	0623.8	8	12	36		
	8800	ATHN	S	0622.1	0623.7	7.3	42.8	12.8		
	4995	ATHN	S	0622.1	0623.7	7.4	38.6	11.6		
	228	HARS	45 C	0622.2	0623	4	165	45		
	4995	MANI	S/F	0622.4	0624	5.2	4 44.4	14.8		
	9100	GORK	4 SF	0622.4	0623.9	12	44			
	100	GORK	46 C	0622.5	0623.7	5	780 D			
	650	GORK	3 S	0622.5	0623.9	6.5	10.5	3		
	100	GORK		0622.5	0626.7		630			
	100	GORK		0622.5	0624.1		775			
	1415	ATHN	S	0622.5	0623.6	3.3	48.2	14.4		
	8800	MANI	S/F	0622.5	0624.5	4	4 31.2	10.4		
	127	TORN	49 GB	0622.5	0627.7	13	2900			SUNRIS
	2695	ATHN	S	0622.7	0623.7	5.7	29.6	8.9		
	260	ONDR	4 S/F	0622	0623.7	5	111	18		
	536	ONDR	4 S/F	0622	0623.4	5	20	8		
	2695	MANI	S/F	0623	0623.5	4	4 32.7	10.9		
	1415	MANI	S/F	0623	0623.5	5	4 102.2	34.1		
	950	GORK		0623.1	0625.3		45			
	950	GORK	45 C	0623.1	0623.7	3.4	86			
	500	HIRA	46 C	0623.1	0623.4	3	12	8		WR
	17000	NOBE	3 S	0623.2	0624	5.2	23			O
	2950	GORK	1 S	0623.3	0623.9	1.5	8.8	4		
	234	POTS	8 S	0623.3	0623.7	1.7	160	50		
	15000	KISV	4 S/F	0623	0624	3	18			
	100	HIRA	48 C	0627.8	0628.4	10	8000	300		WL
	2950	GORK	20 GRF	0629.1	0635.5	10.2	9.4	4.7		
	228	HARS	45 C	0651.5	0651.7	1	80	20		
	221	ABST	48 C	0653.2	0654	2	28	17		
	113	POTS	41 F	0927.6	0928.7	1.4	100	3		
	10400	BERN	20 GRF	1040	1058.1	21.5	5	15		
	245	SGMR	6 S	1206.4	1206.8	1.7	82.6	16.5		
	410	SGMR	6 S	1206.5	1207.2	1.3	24.2	4.8		
	228	HARS	45 C	1206.8	1207	1	80	25		
	9100	ARCE	8 S	1629.2	1629.5	.8				
	245	SGMR	43 NS	1630	1717.5	469 D	91.7			
	2800	OTTA	1 S	1728	1729	4	3	1.5		
	4995	BOUL	4 SF	1808.5	1810.5	5.5	20	7		
	7000	SAOP	3 S	1810	1811.5	9.6	24			SR
	4995	SGMR	3 S	1810.1	1811.4	5.2	26.8	8		S
	1415	SGMR	3 S	1810.1	1810.8	4.4	37.8	11.3		S
	8800	SGMR	3 S	1810.1	1812.2	5.2	21.1	6.3		S
	245	SGMR	6 S	1810.2	1811.2	3.3	107	32.1		S
	410	SGMR	6 S	1810.2	1812.6	3.2	28.2	8.5		S
	606	SGMR	3 S	1810.4	1811.1	4.1	25.5	7.7		S
	2695	SGMR	3 S	1810.8	1811.8	4.5	19	5.7		S
	1420	BOUL	4 SF	1810 E	1810.5	4 D	30	10		
	2800	OTTA	4 S/F	1810	1811.5	6	30	7.4		
	930	BORD	46 C	1810	1811.3	4	81	6		
	228	HARS	45 C	1811	1811.5	4	100	30		
	2695	BOUL	45 C	1811 E	1812.5	3 D	15	5		
	2695	BOUL	29 PBI	1814 E	1814	3.5D	10	3		
	9400	HUAN	S	2051	2101.5	20	19.8	12.5		R
	4995	SGMR	45 C	2055	2101		20.1			S
	4995	SGMR	45 C	2055	2057.7	15.9	15.4	6		S
	15400	SGMR	45 C	2055.5	2104		47.5			S
	15400	SGMR	45 C	2055.5	2057.7	14.5	15.4	14.3		S
	8800	SGMR	45 C	2055.7	2057.8	16	18.3	7.6		S
	8800	SGMR	45 C	2055.7	2104.3		25.3			S
	4995	BOUL	45 C	2055	2057.5	9.5	20	7		
	2695	PENT	45 C	2055	2057.8	8	21.6	7.6		
	2695	SGMR	3 S	2056.3	2057.7	14.4	21.9	6.6		S
	2695	BOUL	3 S	2056.5E	2058.5	3 D	10	3		
	1415	SGMR	3 S	2056.6	2057.6	5.9	21.2	6.4		S
	2695	BOUL	29 PBI	2059.5E	2059.5U	3 D	5	2		
	410	SGMR	6 S	2100	2101.6	2.1	152	45.6		S

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DAY OF MONTH	FREQUENCY	STATION	TYPE		STARTING TIME UT	TIME OF MAXIMUM UT	DURATION MINUTES	FLUX DENSITY 10^{-22} Wm^{-2} Hz^{-1} PEAK	FLUX DENSITY 10^{-22} Wm^{-2} Hz^{-1} MEAN	INT	POLARIZATION OR REMARKS
	245	SGMR	6	S	2100	2101	2	53.4	16		S
	2695	PENT	29	PBI	2103	2103	65	3.2	1.6		
19	260	ONDR	44	NS	0544 E		506 D	84	4		
	245	SGMR	44	NS	0910 E	1831.1	908 D	213			
	200	GORK	43	NS	1023		152		10		
	127	TORN	43	NS	1029 U	1120.4	270 D	55	3.5		V1
	100	GORK	43	NS	1059		78		5		
	29	UPIC	46	C	1033.2	1033.8	2.8				
	33	UPIC	46	C	1033.5	1033.5	3.2				
	100	GORK	46	C	1033.6	1033.7	2.6	140 D			
	100	GORK			1033.6	1035.6		140 D			
	100	GORK			1033.6	1034.8		140 D			
	930	BORD	41	F	1034.7	1035.4	1	50	2		
	234	POTS	8	S	1041.4	1041.4	.1	160	50		
	228	HARS	45	C	1048	1048.5	1.5	160	40		
	234	POTS	8	S	1145.3	1145.4	.1	150	50		
	113	POTS	4	S/F	1237.7	1237.8	.1	200	35		
	2800	OTTA	1	S	1306	1307.5	2	4.8	2.4		
	9400	HUAN		S	1309.2	1330.6	42.3	5.1	3.2		R
	113	POTS	8	S	1311.9	1311.9	.1	100	30		
	234	POTS	8	S	1311.9	1311.9	.1	450	90		
	1470	BERL	8	S	1320.4	1320.5	.6	14			
	930	BORD	46	C	1829.6	1829.7	.4	18	2		
	228	HARS	45	C	1831	1831.5	1.5	300	90		
20	200	GORK	43	NS	0410.5		529.5		5		
	221	ABST	44	NS	0500	0722	300	13			
	260	ONDR	44	NS	0543 E		507 D	67	3		
	202	IZMI	43	NS	0600		360	50			
	200	HIRA	43	NS	0620	0635	215	8	5		ML
	245	SGMR	44	NS	0911 E	1136.8	907 D	201.8			
	127	TORN	43	NS	1120 U	1211.7	220 D	32	2.5		V1
	100	GORK	43	NS	1212		48		5		
	100	GORK	8	S	0420.4	0420.5	.5	440 D			
	100	GORK	8	S	0516.5	0516.6	.5	180 D			
	100	GORK	8	S	0558.7	0558.8	.6	200 D			
	113	POTS	4	S/F	0617.7	0618	1.3	850	50		
	228	HARS	45	C	1026.5	1027	1	200	50		
	29	UPIC	4	S/F	1438.2	1439.2	2.4				
	33	UPIC	4	S/F	1438.4	1439.2	3.1				
	9100	ARCE	2	S/F	1520.3	1520.5	.8				
	9400	HUAN		S	1752.2	1803	43.9	6.7	4.1		O
	2800	OTTA	20	GRF	2014	2105	160	3	1.8		
	2695	PENT	1	S	2357.8	2358.2	2.2	1.8	.9		
21	700	SYDN	45	C	0152.4	0156.3	4.2				
	260	ONDR	44	NS	0545 E		505 D	9			
	33	UPIC	4	S/F	0741.5	0741.8	2.1				
	29	UPIC	8	S	0741.6	0741.7	.5				
	113	POTS	4	S/F	0741.8	0741.8	.5	7000	450		
	33	UPIC	45	C	0752.5	0753.8	4				
	29	UPIC	45	C	0752.6	0753.9	3.3				
	33	UPIC	45	C	1005.1	1006.4	2.4				
	29	UPIC	45	C	1005	1006.1	2.6				
	3100	CRIM	1	S	1116	1117.5	2	4	1		
	9400	HUAN		S	1500.2	1501.5	3	8.3	4.5		R
	2800	OTTA	1	S	1818.7	1819.1	3	3.2	1.1		
	9100	ARCE	4	S/F	1848.4	1849.1	1.2				
	2800	OTTA	20	GRF	2130	2155	30	1.6	.8		
	2695	PENT	20	GRF	2240	2350	120	3.2	1.6		
22	203	GORK	43	NS	0304 E		577 D		5		
	260	ONDR	44	NS	0550 E		460 D	27			
	245	SGMR	44	NS	0911 E	1628	908 D	57			
	1403	SYDN	48	GB	0444.4	0451.9	11.6				
	2695	ATHN		GRF	0447	0453.6	9.4	11.3	6.8		
	4995	ATHN		GRF	0447.4	0453.2	9.4	15.2	9.1		
	9100	GORK	20	GRF	0447.9	0455.8	30	8	4		
	200	GORK	4	SF	0448.2	0451	3.7	40 D			
	650	GORK	4	SF	0448.3	0452	8	2			
	950	GORK	2	SF	0448.5	0451.9	5	4.5			
	100	HIRA	46	C	0448.5	0450	6	950	300		ML
	228	HARS	45	C	0449	0450.5	2.5	100	20		
	1415	ATHN		GRF	0449.5	0451.9	6.1	37.5	22.5		
	200	HIRA	46	C	0449	0449.5	5	50	15		ML
	8800	ATHN		GRF	0450.7	0453.3	6.1	11.1	6.6		
	200	HIRA	27	RF	0456	0520	99	15	8		O
	100	HIRA	27	RF	0456	0530	54	100	50		ML
	930	BORD	8	S	0753.2	0753.2	.1	16	1		
23	260	ONDR	42	SER	0603	0614.3	46	24			
	221	ABST	42	SER	0730	0731.5	7	15			
	9400	HUAN		S	1730	1745.8	39	5.3	2.5		O

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	245	SGMR	43	NS	1736	2055	324	62.7			
	410	SGMR	43	NS	1736	2058.3	324	32.6			
	606	SGMR	43	NS	2036.2	2053	28.4	56.7			
	606	SGMR	45	C	2025.6	2026		15.8			
	606	SGMR	45	C	2025.6	2031.4	8.4	35.7	10.7		
	1415	SGMR	45	C	2032	2032.6		22			
	1415	SGMR	45	C	2032	2032.4	1.2	29.1	1.1		
24	100	HIRA	43	NS	0200	0258	135	200	30		SR
	200	HIRA	43	NS	0215	0250	150	20	5		SR
	260	ONDR	41	F	1230	1251.3	44	10	1		
	245	SGMR	43	NS	1231.6	1606	707.4D	141			
	200	HIRA	44	NS	1930 E	2030	180 D	3	2		0
	9400	HUAN		S	1351.7	1405	27	4.8	2.7		R
	2800	OTTA	8	S	1528.9	1528.9	.1	11.4			
	228	HARS	45	C	1606.5	1608.8	2.5	125	20		
	9400	HUAN		S	1729.8	1800.6	57.7	6.4	5.5		R
	2800	OTTA	20	GRF	1730	1815	90	2.2	1.1		
25	700	SYDN	40	F	0216.9	0217.8	1.3				
	9100	GORK	1	S	0428.4	0429.5	4.9	10	5		
	3100	CRIM	3	S	0520	0530	20	50 D			
	200	GORK			0523	0530.8		18			
	200	GORK	46	C	0523	0525.9	10.6	17			
	950	GORK	1	S	0525.4	0526	2.2	2			
	650	GORK	1	S	0526	0528.7	7	1.5			
	1400	SYDN	45	C	0526	0529.8	4.6				
	2950	GORK	3	S	0527.8	0529.1	3.9	33	15		
	100	HIRA	46	C	0532	0534.5	7	2000	500		SR
	536	ONDR	4	S/F	0558	0558.3	2	35			
	260	ONDR	43	NS	0730		408 D	11			
	127	TORN	43	NS	0900 U	1128	150 U	140	.4		V1
	245	SGMR	44	NS	0912 E	2137.6	907 D	90			
	410	SGMR	43	NS	1920	1935.8	299 D	36			
	9100	ARCE	1	S	0834.8	0835	.8				
	113	POTS	4	S/F	1408.5	1408.6	1.1	200	20		
	113	POTS	41	F	1427.2	1428	4.4	180	1		
	9400	HUAN		S	1428	1436.8	25	8.2	3.6		R
	2800	OTTA	20	GRF	2113	2114.5	18	4	1.3		
26	100	HIRA	46	C	0024	0026.5	5	140	50		WL
	200	HIRA	46	C	0025	0027	5	50	25		WL
	260	ONDR	44	NS	0541 E		512 D	54	4		
	202	IZMI	43	NS	0600		360	40			
	200	HIRA	43	NS	0700	0850 U	175 D	13	8		MR
	127	TORN	44	NS	0720 E	0853	360 D	130	2.5		V1
	100	GORK	43	NS	0821		69		10		
	245	SGMR	44	NS	0912 E	1847.7	907 D	217			
	3100	CRIM	21	RBI	0646	0722		10			
	9100	ARCE	21	GRF	0704	0728.9	72				
	10400	BERN	1	S	0705	0707.3	5	4	11		
	3000	BERL	3	S	0705.7	0707.2	3.3	10			
	1470	BERL	3	S	0706	0707	4	6.7			
	9500	BERL	1	S	0706	0707.5	2	9.6			
	9100	ARCE	1	S	0706.1	0707.4	3.3				
	3100	CRIM	1	S	0707	0708.5	3	7			
	930	BORD	8	S	0716	0716.2	.3	42	2		
	536	ONDR	2	S/F	0754	0756.8	5	8	3		
	536	ONDR	41	F	0858	0858.5	1.5	18			
	930	BORD	8	S	0943.5	0943.7	.3	22	2		
	930	BORD	40	F	1016	1021.3	9	44	5		
	410	SGMR	6	S	1017	1019.9	6.4	65	19.5		
	650	GORK	23	GRF	1017.3	1021.7	13.4	8			
	3000	BERL	4	S/F	1017.5	1019.8	8.5	75			
	1470	BERL	4	S/F	1017.5	1020.8	9.5	17			
	536	ONDR	45	C	1017.5	1020	9	91	25		
	950	GORK	29	PBJ	1017.8	1021	5.8	10			
	950	GORK	4	SF	1017.8	1020.1	3.2	26			
	606	SGMR	3	S	1017.9	1019.5	7.1	206.8	62		
	15000	KISV	4	S/F	1017	1020	5	39 D			
	6100	KISV	4	S/F	1017	1020	38	124			
	10400	BERN	3	S	1018	1019.8	25	34	101		
	4995	SGMR	3	S	1018	1019.8	6.8	189	56.7		
	15400	SGMR	3	S	1018	1019.9	7.1	84.1	25.2		
	8800	SGMR	3	S	1018	1019.8	7.1	133	39.9		
	408	TRST	47	GB	1018	1019.9	7	94			
	1415	SGMR	3	S	1018.1	1020.4	8.2	13.3	3.9		
	9500	BERL	3	S	1018.3	1019.7	7.7	110			
	650	GORK	4	SF	1018.4	1019.9	3.1	70	35		
	2950	GORK	3	S	1018.4	1019.9	4.4	140	70		
	2695	SGMR	3	S	1018.5	1020.3	5.7	67.6	20.3		
	245	SGMR	6	S	1018.6	1019.1	3.4	136.8	41		
	9100	ARCE	3	S	1018.6	1020.1	8.6				
	10715	DWIN	3	S	1018	1020	7	60	40		
	2650	DWIN	4	S/F	1018	1020	7	60	40		

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	127	TORN	45	C	1024.7	1025.1	3.2	110	45		
	536	ONDR	8	S	1038.6	1038.6	.3	35			
	127	TORN	45	C	1051.3	1052.1	1.7	130	67		
	113	POTS	4	S/F	1051.5	1052.1	.9	110	20		
	9400	HUAN		S	1329.5	1343.8	44.3	5	2.2		R
	9400	HUAN		S	1425.5	1426.9	2.2	6.7	2.5		R
	9400	HUAN		S	1628.7	1629.8	2.8	8.3	3.6		O
	9400	HUAN		S	1711	1719.2	37.3	5	3.2		R
	2800	OTTA	21	GRF	2040	2058	45	2.2	1.1		
	2800	OTTA	1	S	2049.5	2050.5	4.5	7.2	3		
	9400	HUAN		S	2201	2202.5	2.3	15	7.8		R
27	2695	PENT	21	GRF	0035	0117	75 D	8.6			
	2930	VORO	3	S	0110	0115	10	32			
	4995	BOUL	8	S	0114	0115	2	81	27		
	2695	PENT	3	S	0115	0115.8	1.5	33.6	13.4		
	2695	BOUL	8	S	0116 E	0117	1.50	26	9		
	200	GORK	43	NS	0527		244		5		
	260	ONDR	44	NS	0539 E		451 D	60	3		
	221	ABST	44	NS	0600	0812	180	13			
	245	SGMR	44	NS	0913 E	2159.1	907 D	33			
	3100	CRIM	1	S	0811	0811.5	1	5	2		
	202	IZMI	5	S	0811.2	0811.2	.7	75	30		
	536	ONDR	8	S	0811.3	0811.3	.3	91			
	200	GORK	4	SF	0811.9	0812.4	1.2	30 D			
	6100	KISV	1	S	0811	0811.3	2	3			
	650	GORK	1	S	0812	0812.6	2.3	2			
	100	GORK	4	S/F	0812.2	0812.5	1.6	190			
	930	BORO	8	S	0955.7	0955.9	.2	29	2		
	9400	HUAN		S	1242.3	1242.5	1.9	14.3	6.7		L
	2695	BOUL	1	S	1631 E	1631.5	1 D	5	2		
	9400	HUAN		S	1918.2	1929.8	38	4.8	2.3		O
	2800	OTTA	20	GRF	2040	2106	80	3.8	1.6		
28	221	ABST	44	NS	0500	0921	180	25			
	260	ONDR	44	NS	0546 E		506 D	29			
	127	TORN	44	NS	0630 E	0647.3	40 U	100			SUNRISE
	245	SGMR	43	NS	1000	1628.8	860 D	421			
	410	SGMR	43	NS	1238	2305.6	702 D	77			
	228	HARS	45	C	0540.8	0542	2.4	250	85		
	113	POTS	8	S	0700.3	0700.4	.2	120	40		
	9100	GORK	20	GRF	0702.8	0707.4	39	11	6		
	3100	CRIM	1	S	0900.5	0901	1	7	2		
	930	BORO	46	C	0900.8	0901.4	.9	45	3		
	9100	GORK	29	PBJ	1018.3	1022.6	13	27	13		
	9100	GORK	4	S	1018.3	1019.9	4.3	120			
	9400	HUAN		S	1559	1614.5	20.1	3.1	2.1		R
	2800	OTTA	20	GRF	1815	2125	275	4.6			
	228	HARS	45	C	1904.4	1905.2	1.6	270	70		
	2695	BOUL	4	SF	1917.5E	1918	1 D	20	7		
29	500	HIRA	46	C	0115	0115.7	1.5	55	30		WR
	2695	PENT	1	S	0124	0128	9	5.4	2.4		
	260	ONDR	44	NS	0538 E		508 D	37			
	245	SGMR	44	NS	0913 E	1216.5	907 D	94			
	410	SGMR	44	NS	0913 E	1023.2	907 D	52			
	221	ABST	42	SER	0708	0713	7	15			
	408	TRST	7	C	1022.9	1023.2	.6	110			
	536	ONDR	8	S	1053.5	1053.5	.2	156			
	408	TRST	7	C	1053.7	1053.8	.5	120 D			
	2800	OTTA	20	GRF	1410	1450	100	4.8	2.4		
	606	SGMR	3	S	1635.9	1636.6	.9	54	19		SWF
	410	SGMR	6	S	1817	1824	12	165	49.5		SWF
	245	SGMR	7	C	1818.4	1828.8	10.9	114	34.2		SWF
	8800	SGMR	3	S	1822.9	1824.1	3.3	101	30.3		SWF
	4995	BOUL	4	SF	1822	1823	3	21	7		
	9400	HUAN		S	1823.4	1824	4.7	96.5	27.3		L
	7000	SAOP	3	S	1823.6	1824.2	1.1	70			O
	9100	ARCE	3	S	1823.6	1824.2	2.3				
	4995	SGMR	3	S	1823.6	1824	1.4	14.6	4.4		SWF
	15400	SGMR	3	S	1823.6	1824	2.4	80.2	24.1		SWF
	606	SGMR	3	S	1823.8	1824	3.6	25.9	7.8		SWF
	2800	OTTA	1	S	1823.9	1824.1	2	9.8	3.3		
	930	BORO	3	S	1823	1824.3	3	17	4		
	2650	OMIN	3	S	1823	1824	2	55	30		
	2695	SGMR	1	S	1824	1824.7	3	9.3	2.8		SWF
	2695	BOUL	3	S	1824.5E	1825	4 D	15	5		
	2800	OTTA	20	GRF	1850	1853	24	2.4	1.2		
	606	SGMR	3	S	2326.8	2327	.6	31.3	9.4		
30	200	GORK	44	NS	0423 E		256 D		5		
	260	ONDR	44	NS	0542 E		518 D	32	2		
	127	TORN	44	NS	0630 E	1417	510 D	60	8.5		V1
	410	SGMR	44	NS	0924 E	0955.4	896 D	15			

SOLAR RADIO EMISSION
OUTSTANDING OCCURRENCES

JUNE 1979

DAY OF MONTH	FREQUENCY	STATION	TYPE		STARTING TIME UT	TIME OF MAXIMUM UT	DURATION MINUTES	FLUX DENSITY 10^{-22} Wm^{-2} Hz^{-1} PEAK	FLUX DENSITY MEAN	INT	POLARIZATION OR REMARKS
30	245	SGMR	44	NS	0924 E	1918.6	896 D	157.6			
	200	HIRA	44	NS	1930 E	2225	555 D	400	10		ML
	536	ONDR	8	S	0608	0608	.3	55			
	221	ABST	42	SER	0713.8	0728.5	25	12			
	113	POTS	4	S/F	0821.4	0821.4	.3	700	200		
	202	IZMI	7	C	0954.8	0955.5	1.5	180	90		
	536	ONDR	42	SER	0954	1029.4	74	27			
	9400	HUAN		S	1210.5	1219.3	16.2	3.2	2.2		R
	9400	HUAN		S	1213.8	1215.7	2.5	37.9	14.8		L
	10400	BERN	4	S/F	1214	1215.7	11	13	38		
	4995	SGMR	3	S	1214.1	1215.9	2.9	74	22.2		SWF
	606	SGMR	3	S	1214.2	1215.7	3.7	311	93.3		SWF
	1415	SGMR	3	S	1214.5	1215.4	3.1	22.6	6.8		SWF
	2800	OTTA	240	R	1214.5	1215	.5	2.6	1.3		
	8800	SGMR	3	S	1214.7	1215.8	2.4	41.3	12.4		SWF
	536	ONDR	45	C	1214	1215.7	3.5	78	4.4		
	15400	SGMR	3	S	1215.1	1215.9	1.9	19.3	5.8		SWF
	7000	SAOP	4	S/F	1215.2	1215.8	1	47			3L
	408	TRST	7	C	1215.2	1215.8	1.1	75			
	1470	BERL	4	S/F	1215.3	1216	3.7	25			
	9500	BERL	3	S	1215.4	1215.6	1.1	26			
	3000	BERL	4	S/F	1215.5	1215.9	2.9	33			
	410	SGMR	6	S	1215.5	1216	.8	40.8	12.2		SWF
	4995	ATHN		S/F	1215.5	1216	1.6	56.3	16.9		
	2800	OTTA	4	S/F	1215.5	1216	2	38.6	13		
	9100	ARCE	3	S	1215.5	1215.9	2				
	2695	ATHN		S/F	1215.7	1215.9	1.4	52.4	15.7		
	8800	ATHN		S	1215.7	1215.9	.7	38	11.4		
	1415	ATHN		S	1215.7	1216.1	1	22.3	6.7		
	2695	SGMR	3	S	1215.8	1216.3	1.2	36.2	10.9		SWF
	10715	DWIN	1	S	1215	1216	2	20	10		
	2650	DWIN	4	S/F	1215	1216	3	60	20		
	228	HARS	45	C	1249.4	1249.6	.8	370	90		
	1420	BOUL	45	C	1305.5E	1306	1 D	25	8		
	2800	OTTA	8	S	1305.6	1305.8	.7	2	1		
	536	ONDR	4	S/F	1305	1305.5	1	84			
	2800	OTTA	21	GRF	1430	1535	205	5.8	3		
	930	BORD	41	F	1531.4	1531.8	.6	203	2		
	2800	OTTA	2	S/F	1534.5	1535.1	3	2.6			
	1420	BOUL	1	S	1534.5E	1535	1.5D	8	3		
	2695	BOUL	23	GRF	1609.5E	1610.5	4 D	11	4		
	1420	BOUL	1	S	1618.5E	1619.5	2.5D	8	3		
	2800	OTTA	4	S/F	1619	1619.7	1	12.4	6.2		
	930	BORD	41	F	1638	1639.1	2	34	4		
	2800	OTTA	1	S	1726	1726.7	1	1.4	.7		
	2800	OTTA	21	GRF	1810	1950	190	2.6	1.3		
	2800	OTTA	1	S	1834.5	1835.8	3	5.8	2.8		
	228	HARS	45	C	1914.8	1916	4.8	420	140		

Reports received from the following observatories:

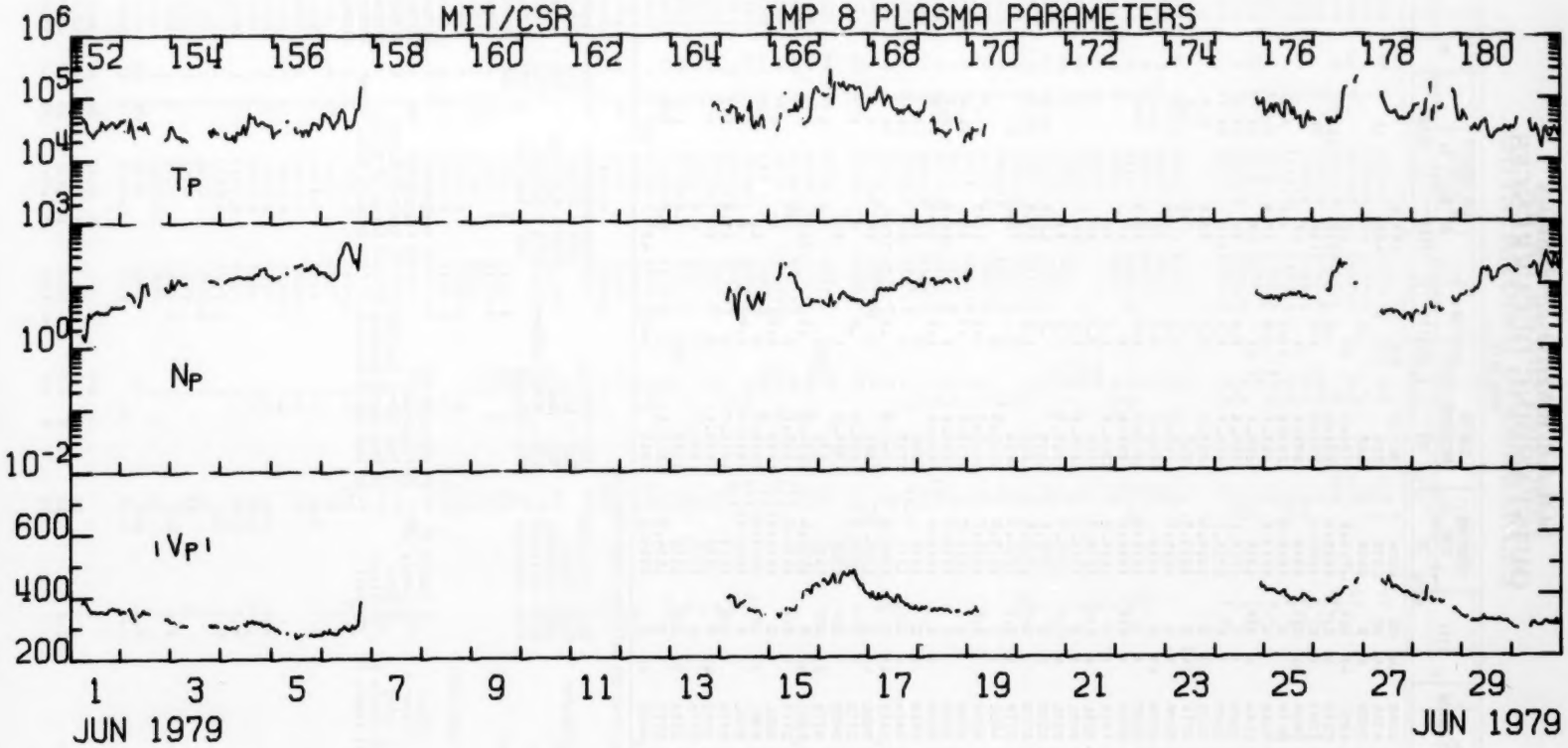
ARCE = Arcetri
BERL = Berlin-Adlershof
BERN = Berne
BORD = Bordeaux
BOUL = Boulder
CRIM = Simferopol
DWIN = Dwingeloo
GORK = Gorky
HARS = Harestua
HIRA = Hiraiso
HUAN = Huancayo
IRKU = Irkutsk
KIEV = Kiev
MANI = Manila
MCMA = McMath-Hulbert
NAGO = Nagoya
ONDR = Ondrejov
OTTA = Ottawa
PENT = Penticton
POTS = Potsdam
SAOP = Sao Paulo
SGMR = Sagamore Hill
SYDN = Sydney
TORN = Torun
TYKW = Toyokawa
TRST = Trieste
VORO = Voroshilov (Ussurisk)

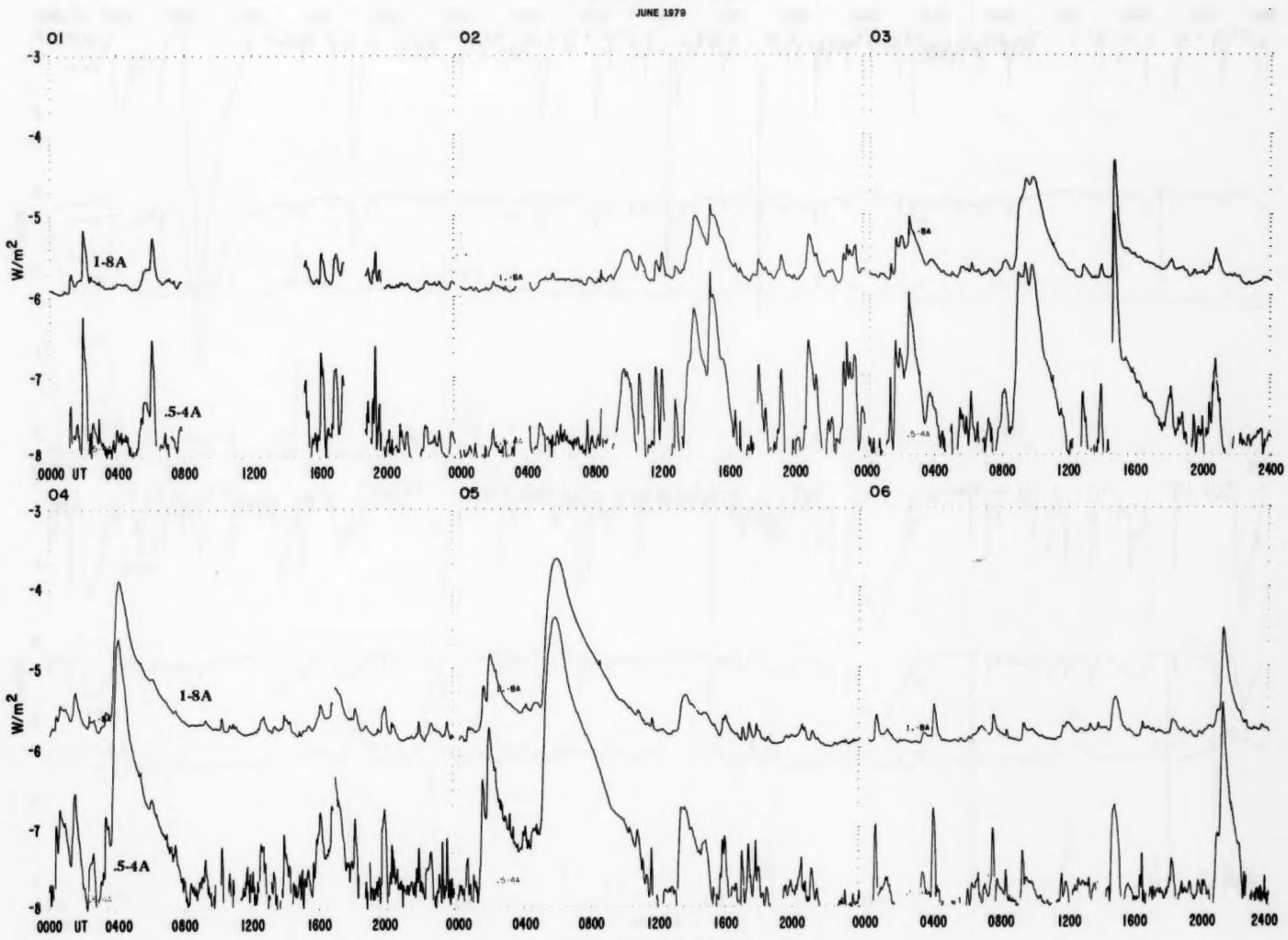
Explanation of Type Code:

1 Simple 1
2 Simple 1F
3 Simple 2
4 Simple 2F
5 Simple
6 Minor
7 Minor +
8 Spike
20 Simple 3
21 Simple 3A
22 Simple 3F
23 Simple 3AF
24 Rise
25 Rise A
26 Fall
27 Rise and Fall
28 Precursor
29 Post Burst Increase
30 Post Burst Increase A
31 Post Burst Decrease
32 Absorption
40 Fluctuation
41 Group of Bursts
42 Series of Bursts
43 Onset of Noise Storm
44 Noise Storm in Progress
45 Complex
46 Complex F
47 Great Burst
48 Major
49 Major +

IMP 8 SOLAR WIND PLASMA

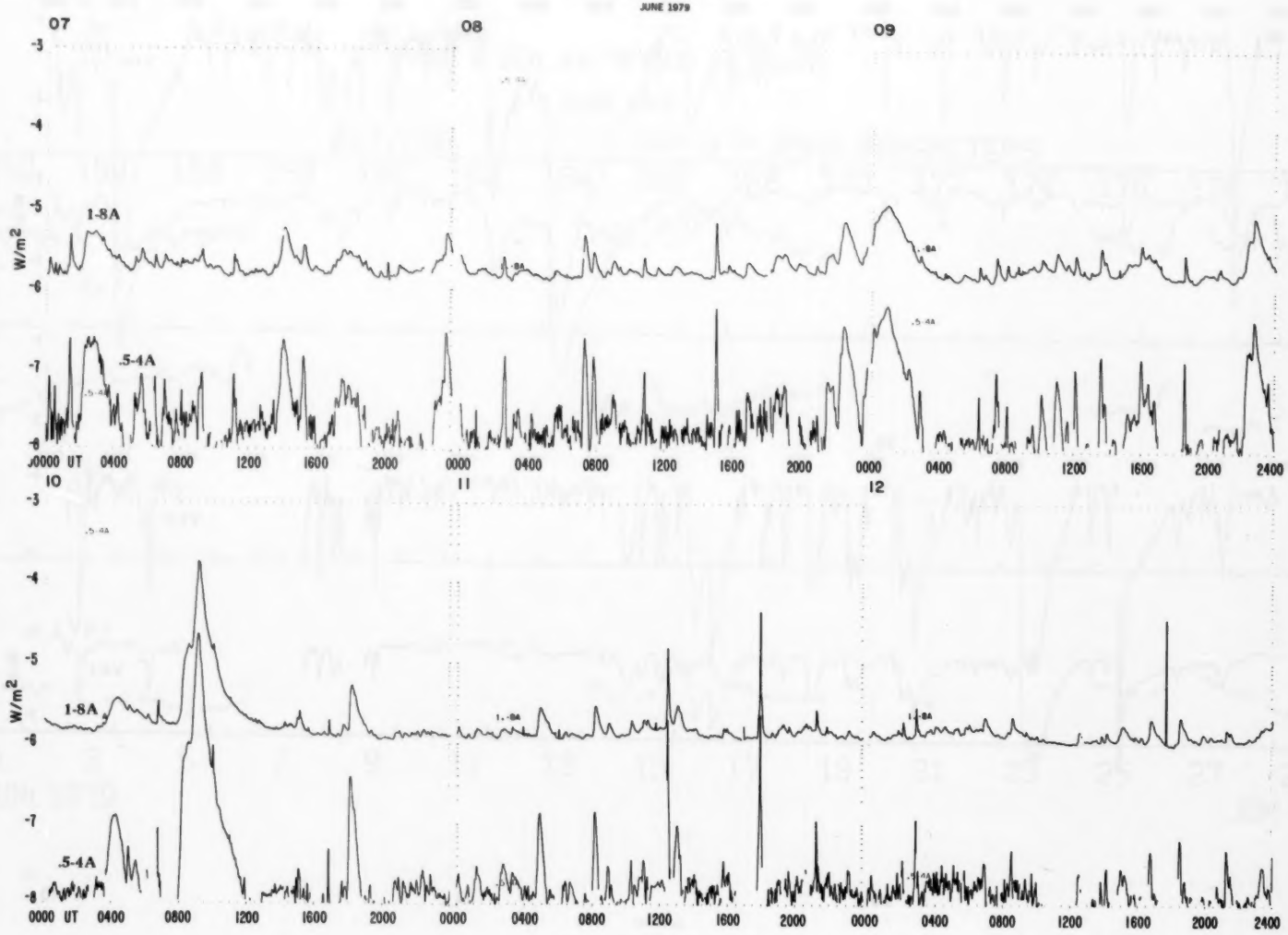
JUNE 1979




SMS-GOES X-RAYS
JUNE 1979
01
02
03
04
05
06
W/m2
1-8A
.5-4A
-3
-4
-5
-6
-7
-8
0000 UT
0400
0800
1200
1600
2000
0000
0400
0800
1200
1600
2000
0000
0400
0800
1200
1600
2000
2400

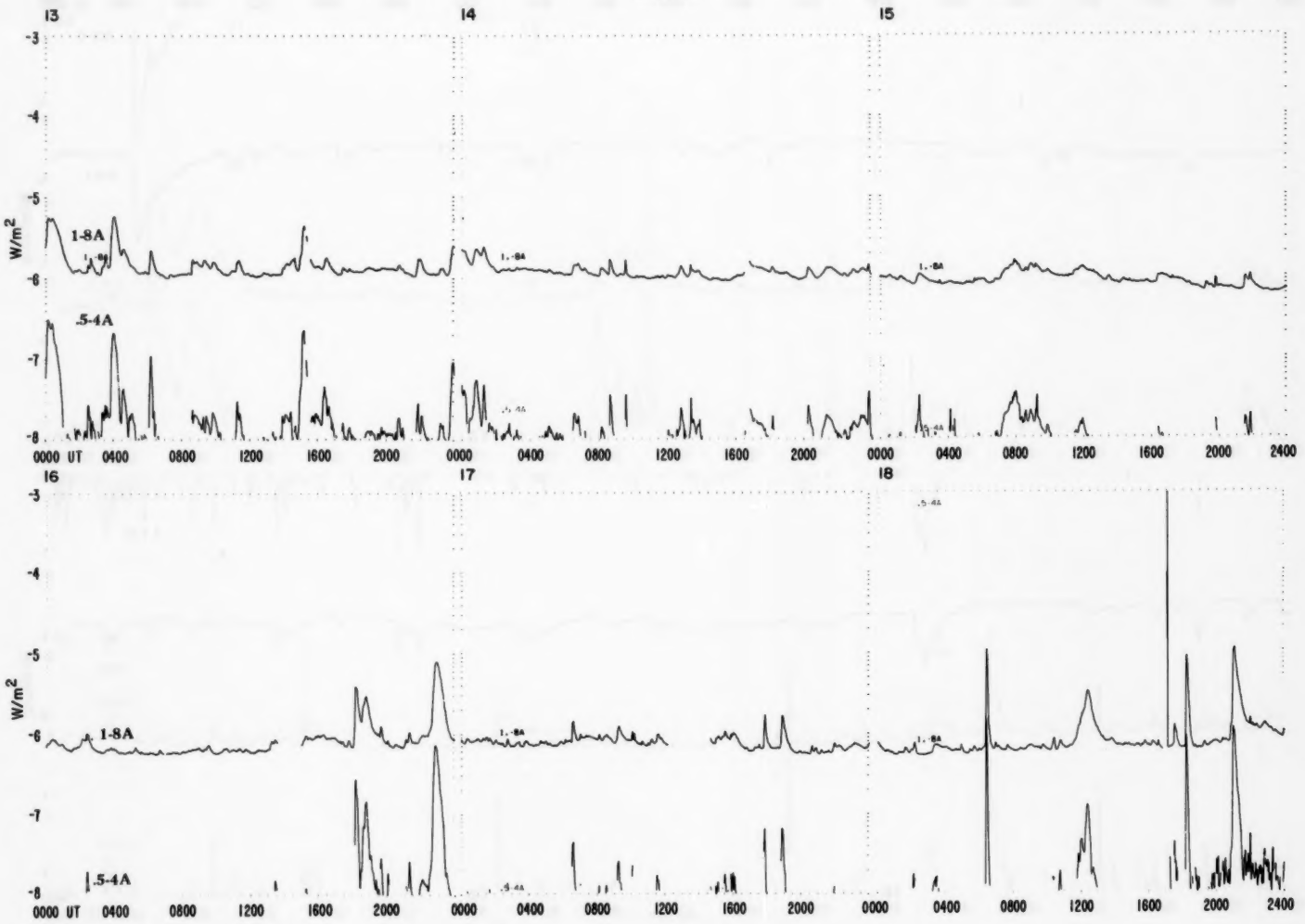
SMS-GOES X-RAYS

JUNE 1979



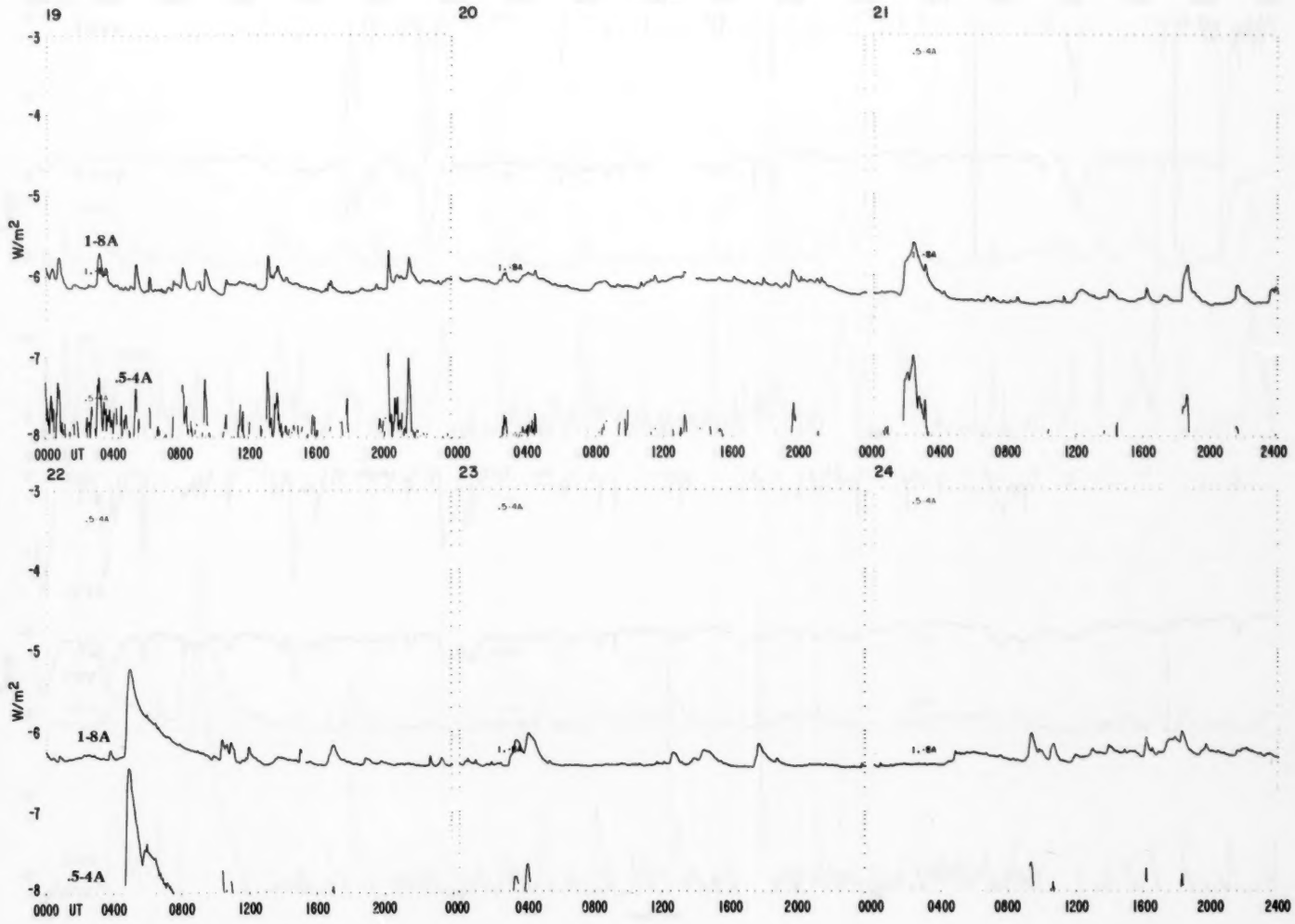
SMS-GOES X-RAYS

JUNE 1979



SMS-GOES X-RAYS

JUNE 1979



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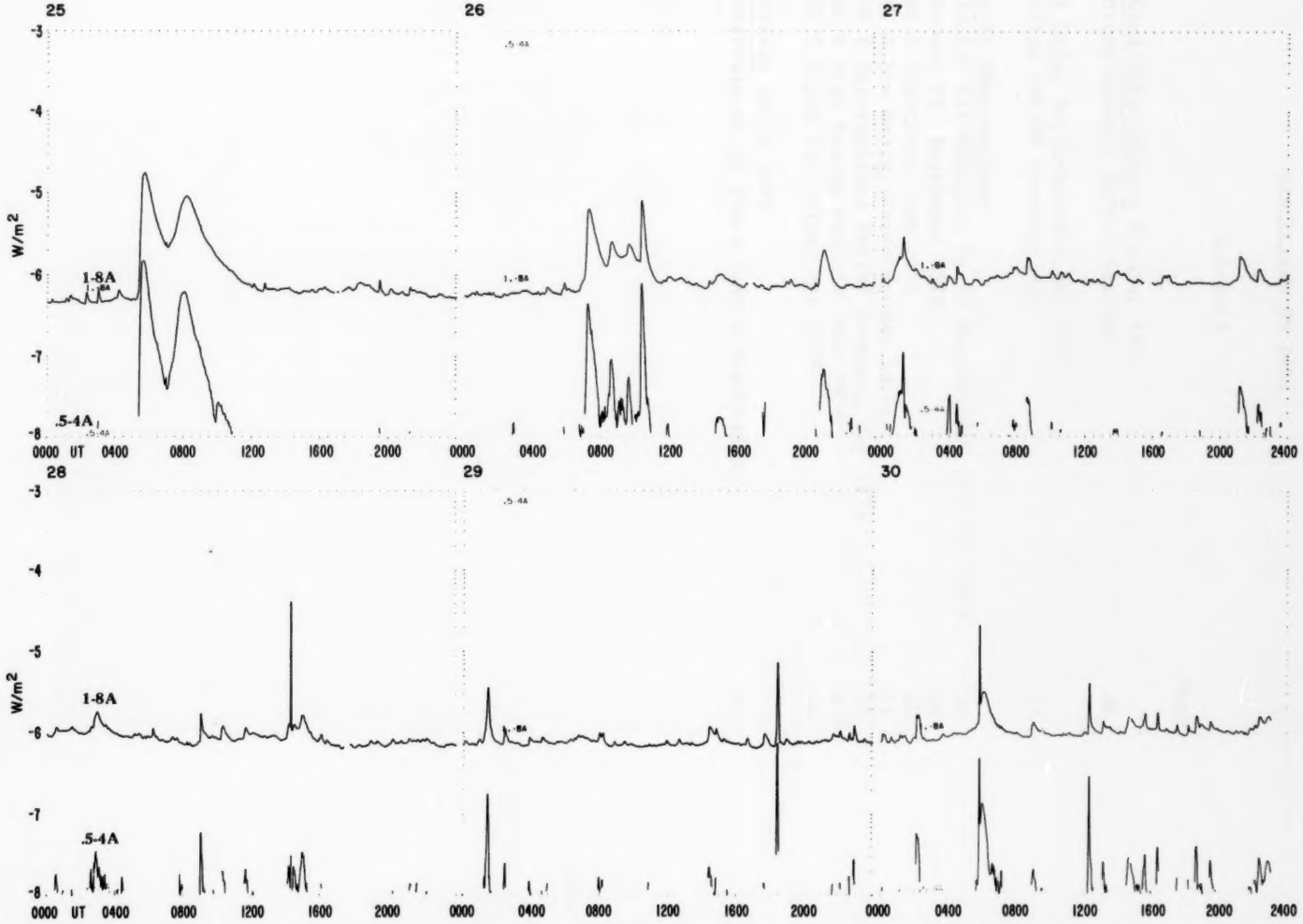
JUNE 1979



SGD 424 Part II (Comprehensive)

MISCELLANEOUS DATA

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SOLAR WIND

Interplanetary Scintillations

OCTOBER 1979

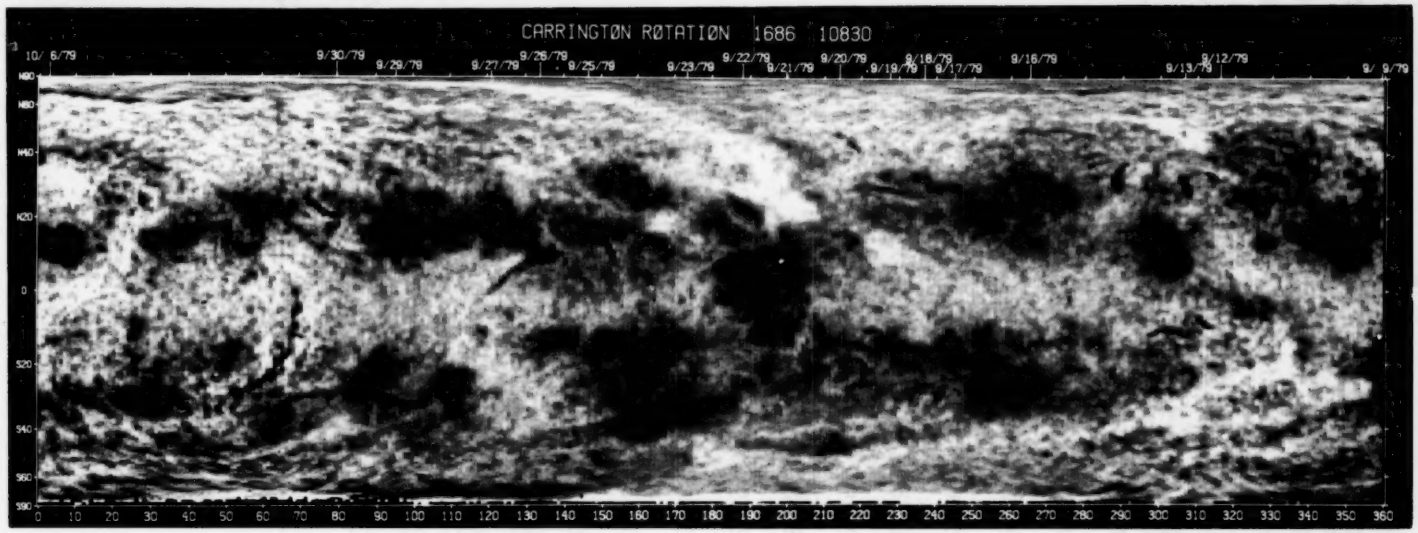
DAY	3C48 VEL	3C48 ERR	3C144 VEL	3C144 ERR	3C147 VEL	3C147 ERR	3C161 VEL	3C161 ERR	3C237 VEL	3C237 ERR	3C273 VEL	3C273 ERR	3C298 VEL	3C298 ERR	3C459 VEL	3C459 ERR
1							309	51					400	88		
2													270	11		
3							398	47	299	11						
4			371	8			361	37	262	7			394	17		
5									343	9			339	14		
8							313	6	365	33						
9					544	109	441	5								
10							312	62	349	48						
11			324	22	223	56	319	17	453	25			366	48		
12							417	23	453	56			469	54		
13					262	-98	395	53								
16							386	95	449	64			411	48		
17			386	35					326	16	306	58				
18							438	8	307	22						
19							228	46					470	18		
20							376	11	287	97	276	36				
21							367	50	310	7	303	8				
23			343	16												
24											294	17				
25									357	75						
26											379	14	398	120		
27									272	25						
28									287	10	265	6				
29							290	58	378	67	300	10			318	
30							298	12			308	42				
31							285	33			394	64				

OCTOBER	5 UT	LAT	DIST	DLON	15 UT	LAT	DIST	DLON	25 UT	LAT	DIST	DLON
3C48	9.	11.	1.27	5.	8.	10.	1.28	3.	8.	9.	1.28	1.
3C144	13.	5.	1.13	15.	12.	4.	1.17	13.	12.	3.	1.21	11.
3C147	12.	12.	1.11	14.	11.	11.	1.15	13.	11.	10.	1.18	11.
3C161	14.	-2.	1.07	14.	14.	-2.	1.11	13.	13.	-3.	1.14	11.
3C237	18.	-2.	0.66	48.	17.	-1.	0.78	38.	17.	0.	0.88	28.
3C273	20.	33.	0.14	85.	19.	13.	0.29	74.	19.	7.	0.45	64.
3C298	22.	49.	0.43	-57.	21.	68.	0.35	-46.	21.	71.	0.33	38.
3C459	6.	8.	1.28	-5.	6.	8.	1.26	-7.	5.	7.	1.24	-9.

HELIUM 10830Å SYNOPTIC MAPS

CARRINGTON ROTATION 1686

KITT PEAK NATIONAL OBSERVATORY



PIONEER XII

MAGNETIC FIELD MAGNITUDES

OCTOBER 1979

DATE	TIME	B_{MAG}	DATE	TIME	B_{MAG}
10/1/79	07:03:	8.78	10/16	13:51	16.44
10/2	07:10	10.84	10/17	-----	-----
10/3	12:20	8.84	10/18	14:07	15.36
10/4	12:36	8.17	10/19	14:07	16.62
10/5	12:35	8.93	10/20	14:16	11.61
10/6	12:45	7.31	10/21	14:22	9.09
10/7	12:52	19.66	10/22	14:28	9.90
10/8	12:59	13.77	10/23	15:37	7.96
10/9	13:06	10.81	10/24	14:40	14.29
10/10	13:15	10.88	10/25	14:47	13.27
10/11	13:19	12.66	10/26	14:54	13.79
10/12	13:25	14.76	10/27	14:58	12.52
10/13	13:31	12.23	10/28	15:49	28.75
10/14	13:39	8.87	10/29	15:14	10.31
10/15	13:36	7.56	10/30	15:19	10.61
			10/31	15:26	3.42

PIONEER IX

SEPTEMBER 1979

Date SEP 1979	DSN Coverage UT	Time* Data UT	ESP (°)	SOLAR WIND[1] U_{H^+} (km/sec)	N_{H^+} (H^+/cc)	T_{H^+} (x10^6 K)	τ (days)	E-Field[2] 400 Hz (mv)	B-Field[3] |B| (nT)	φ (°)	COSMIC RAYS[4] (Part/sec) >13.9 (MeV)	>40
1												
2												
3												
4												
5												
6												
7												
8												
9												
10												
11												
12												
13												
14												
15												
16												
17												
18												
19												
20												
21												
22												
23												
24												
25												
26												
27												
28	2133-0000	2100	-158.	585.			-11.3	0.102	5.7	054.	----	0.61
		2200		630.				.097	7.6	048.	5.29	.63
		2300		630.				.109	8.1	032.	5.08	.65
29	0000-0040	0000		630.				.121	7.6	049.	5.03	.71
		0100		630.				.102	6.2	345.	5.07	.71
30												

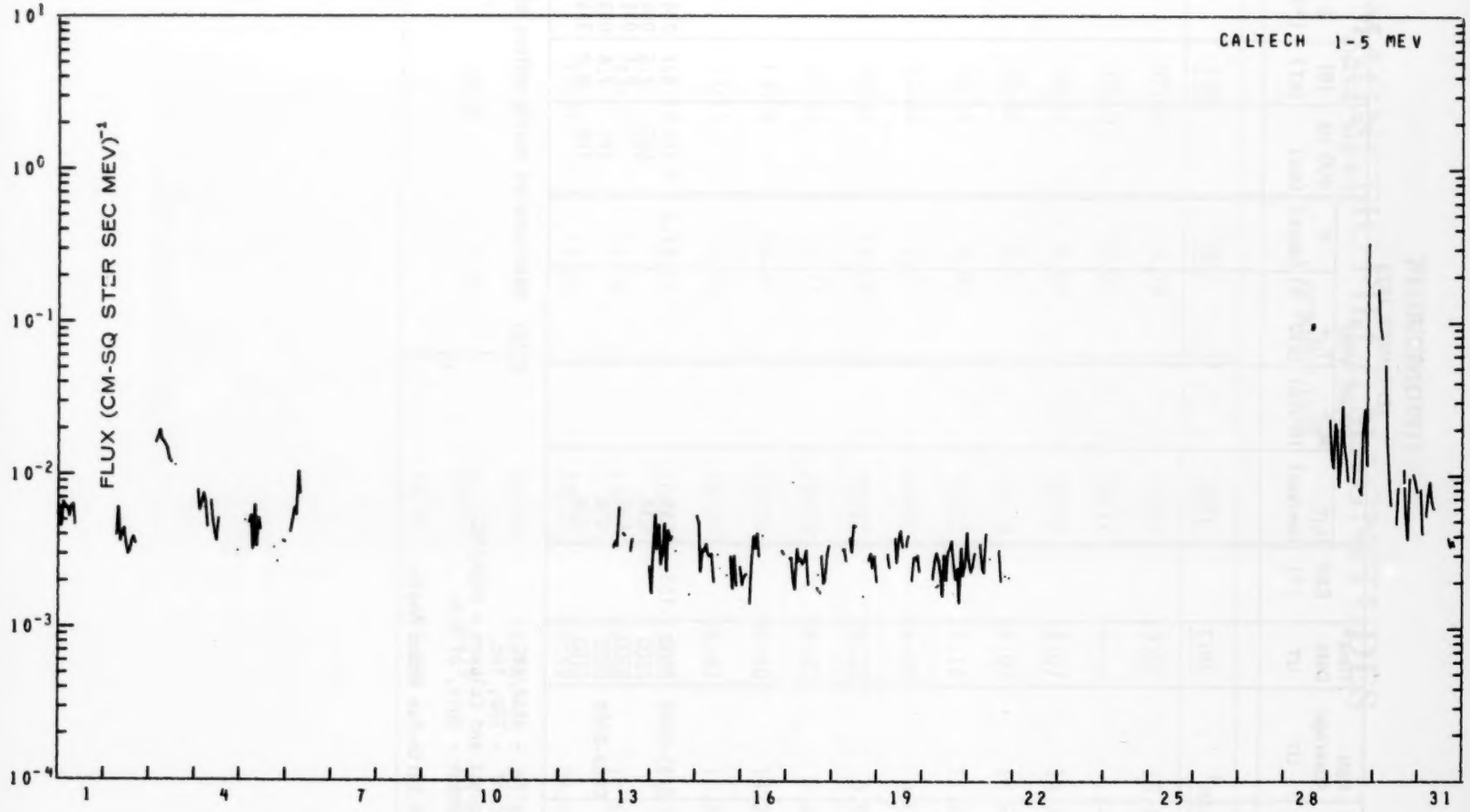
[1] Wolfe - NASA/ARC
[2] Scarf - TRW, Inc.
[3] Sonett and Colburn - NASA/ARC
[4] Webber - Univ. of N.H.

Note: Data sampled hourly unless otherwise noted.

ESP = Earth-Sun Probe Angle.

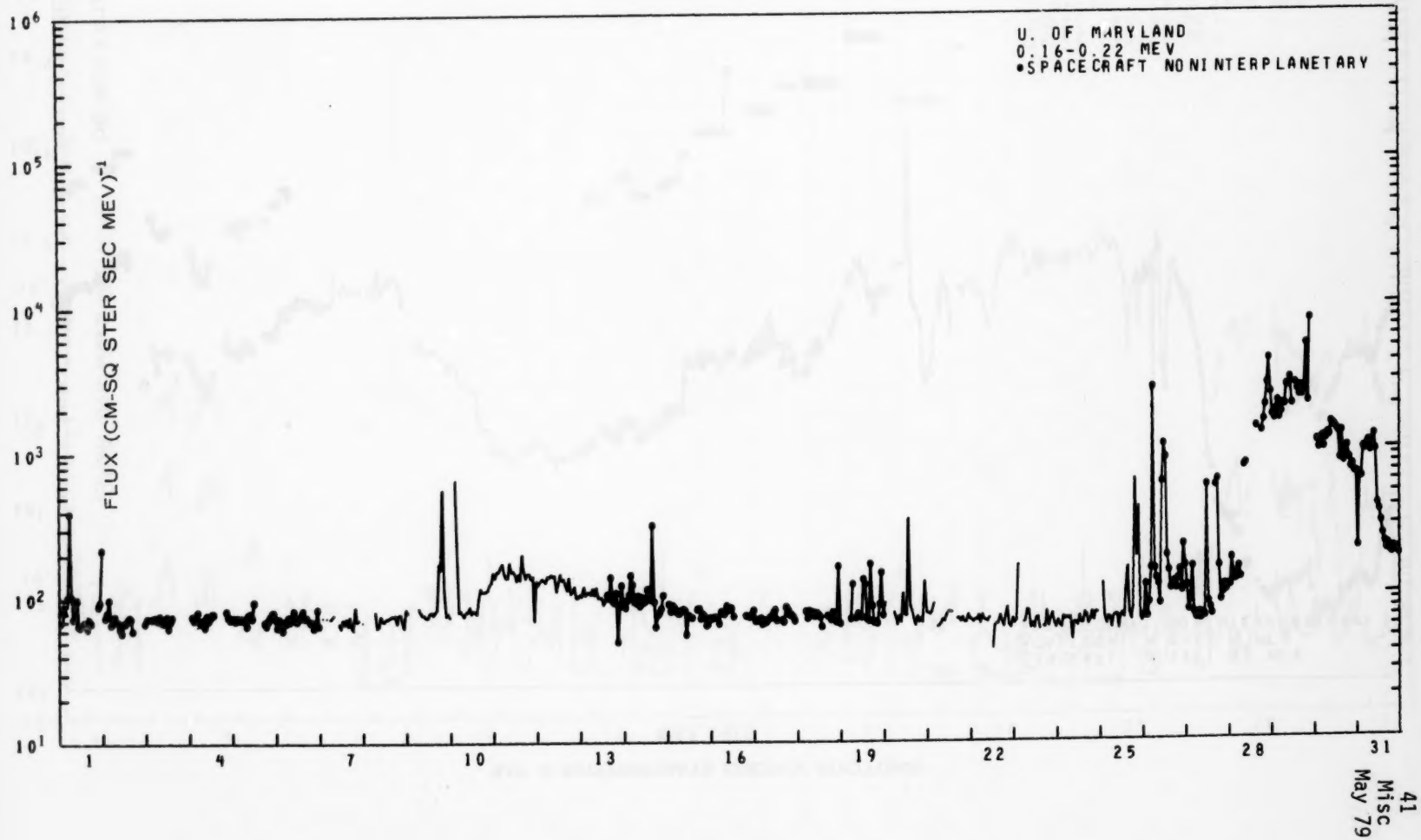
IMP 8 ELECTRONS

MAY 1979



IMP 8 LOW ENERGY PROTONS

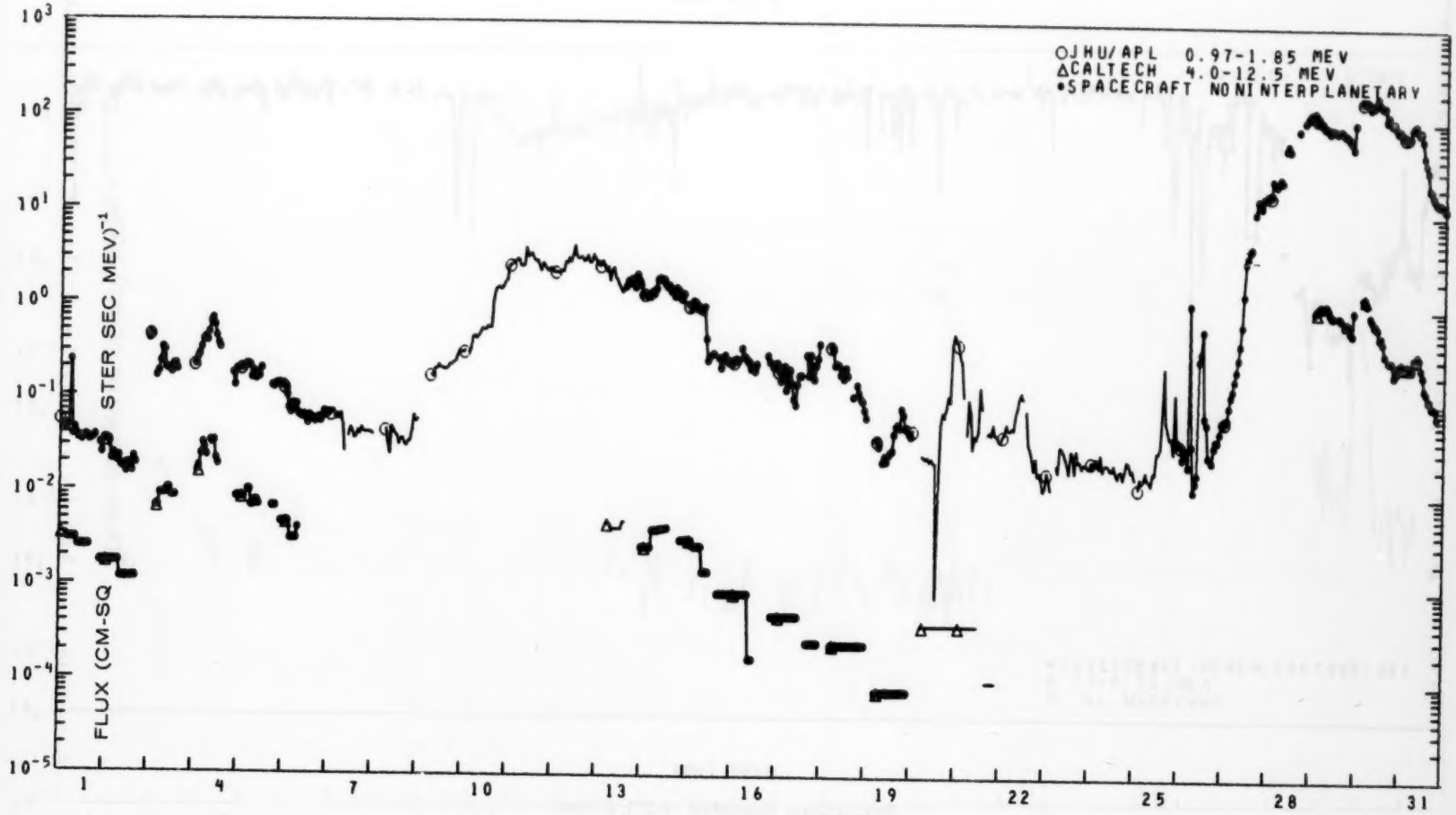
MAY 1979



41
Misc
May 79

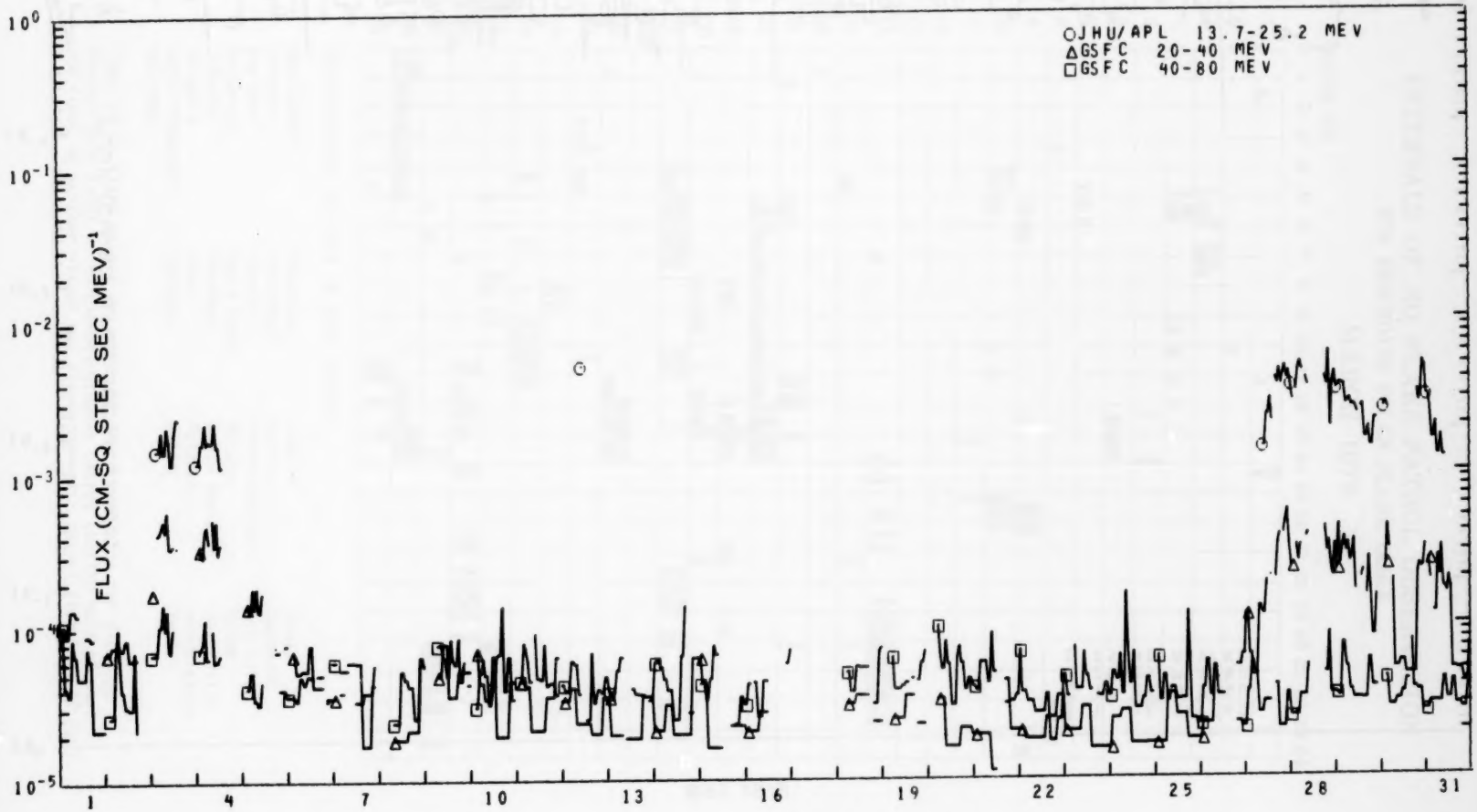
IMP 8 INTERMEDIATE ENERGY PROTONS

MAY 1979



IMP 8 HIGH ENERGY PROTONS

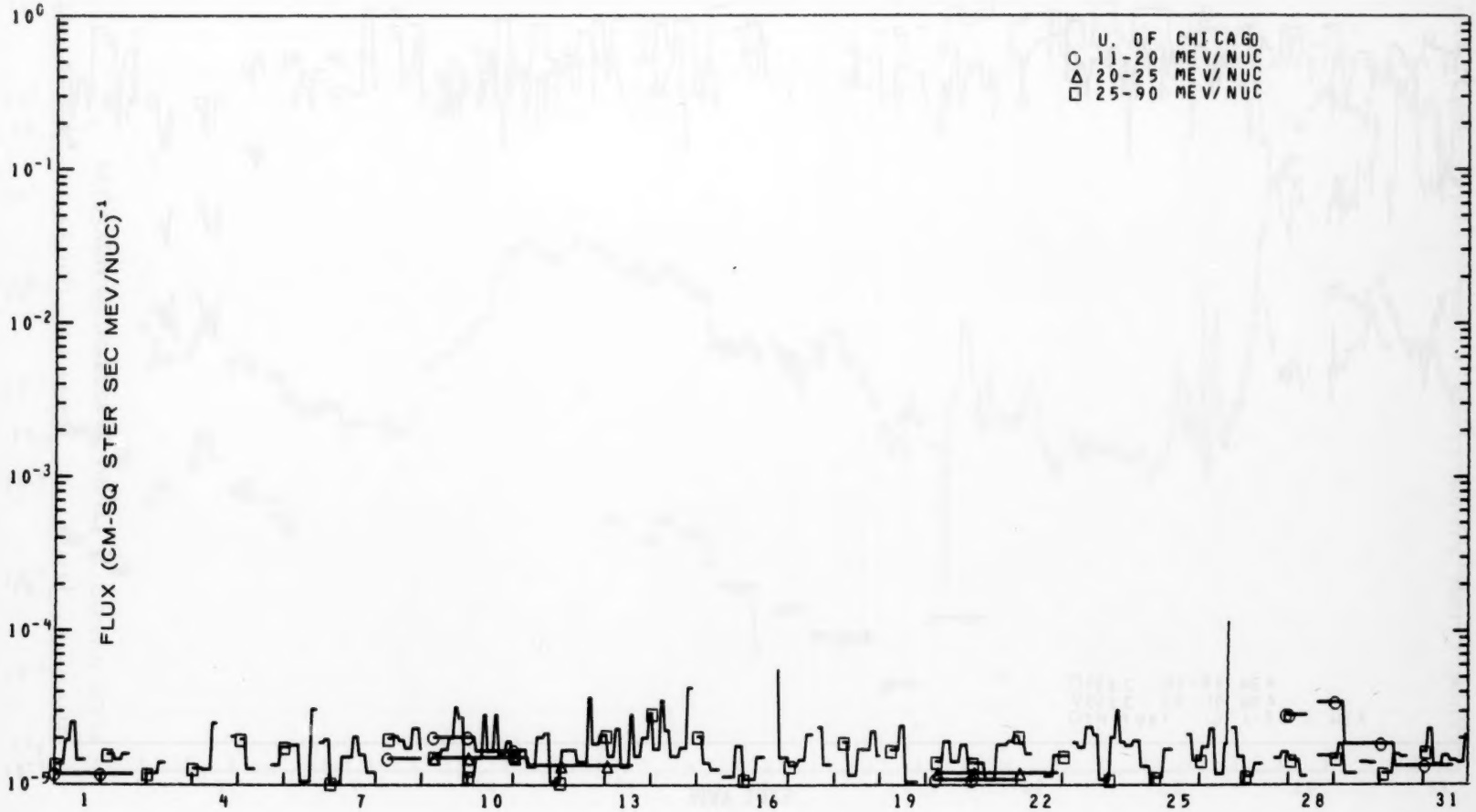
MAY 1979



43
Misc
May 79

IMP 8 ALPHA PARTICLES

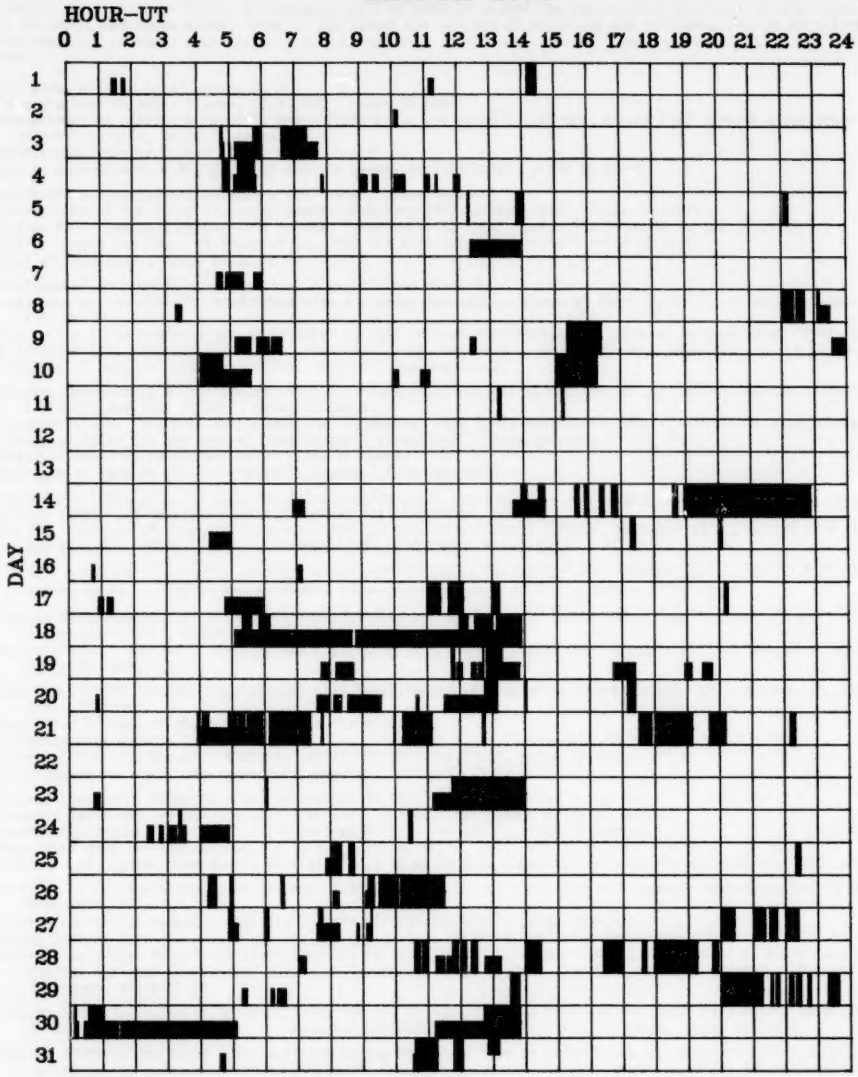
MAY 1979



INTERVALS OF NO FLARE PATROL OBSERVATION

FOR PRECEDING SOLAR FLARE TABLE

MARCH 1979



Observatories included in total patrol:

Abastumani	Huancayo	Lvov	Ramey
Athenes	Istanboul	Manila	Tashkent
Big Bear	Kandilli	McMath-Hulbert	Tel Aviv
Bucharest	Kanzelhohe	Mitaka	Upice
Catania	Kharkov	Monte Mario	Voroshilov
Culgoora	Kiev	Palehua	Wendelstein
Haute Provence	Locarno	Peking	Zurich
Holloman			

Times of no flare patrol are shown by the shaded area for each day divided into times of no cinematographic patrol (bottom half of day) and times of neither visual nor cinematographic patrol (top half of day).

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UAG-23A "U.R.S.I. Handbook of Ionogram Interpretation and Reduction, Second Edition, November 1972", Revision of Chapters 1-4, edited by W. R. Piggott and K. Rawer, NGSDC/EDS/NOAA, July 1978, 135 pages, price $2.14.

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